AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 54 WALL STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. V., No. 22] SATURDAY, JUNE 2, 1849. [WHOLE No. 684, VOL. XXII.

ASSISTANT EDITORS,

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Saturday, June 2, 1849.

The Great Russian Railway from St. Petersburgh to Moscow.

The greatest work of modern times, undertaken as a public improvement and not directly as a war measure, was the project by the Emperor Nicholas of Russia, for a line of railway to connect the great Capitols of the Empire. The distance was generally stated at 500 miles, but the location of the railway has been effected in a distance of only 420 miles.

The plan adopted, contemplated the construction of a road perfect in all its parts, and equipped to its utmost necessity, regardless of expense or of the time requisite to its completion. The estimates were on a scale of imperial grandeur, and contemplated the expenditure of *thirty-eight millions of dollars.* The work was entrusted to Col. Geo. W. Whistler with unlimited authority, and *forty millions of dollars* set aside for the work.

Seven years was the shortest estimate made for the time of its completion, and all parts of the work were so distributed as to give time for every thing to take its appropriate position when required.

These advantages were fully appreciated by Col. Whistler, and all his plans were matured upon a scale of comprehensive economy suited to so important an undertaking. The line selected for the route had no reference to intermediate localities, and is the shortest one attainable without sacrificing more valuable requirements for the road. It is nearly straight, and passes over so level a country as to encounter no obstacles requiring a grade exceeding *twenty feet* to the mile, and most of the distance upon a level. The roadway taken is *four hundred feet* in width throughout the entire length, the road bed elevated from 6 to 10 feet above the ordinary level of the country, and is thirty feet wide on the top. The road is laid with a double track a five feet gauge and a rail of 69 lbs. to the lineal yard, on a ballasting of gravel 2 feet in depth. The bridges have no spans exceeding *two hundred feet*, and are of wood, built after the plan of "*Howe's Improved Patent*," so well known on the New England roads, with a truss 24 feet in depth.

The work had so far advanced at the time of Col. Whistler's death, that a large portion of it will be in use the present year, unless this event shall delay the prosecution of the work. Under these circumstances, the death of Col. Whistler was received in this country with an universal expression of sympathy and sorrow. It is fortunate, however, that the enterprise is so far completed that his fame and his works are safe from the accidents of time or of change. His successor will share largely in the same American spirit that he possessed, and will see no reason to change or modify any thing that had been attempted by a man who united to the rarest mechanical genius, the most eminent practical ability.

MR. WILLIAM L. WINANS of Baltimore, recently arrived from Russia by the way of Paris, left St. Petersburg a few days only before Col. Whistler's death. He has in conversation with us given information such as has not been before detailed in this country, and we feel more than ordinary pleasure in giving some account of the road to our readers. Mr. Winans is of the firm of Harrison, Winans & Eastwick, who are so well known in this country as the contractors for furnishing the equipment of this road. They have already supplied it with

162 Locomotive Engines, averaging 25 tons weight.
72 Passenger Cars.
2,580 Freight Cars.
2 Imperial Saloon Carriages, capable each of carrying the Imperial Court of Russia.

This equipment has been built in Russia in shops prepared by the contractors, and supplied by them with Russian labor. The whole contract with Messrs. Harrison, Winans & Eastwick has amounted to between *four* and *five millions of dollars.* They engaged to instruct a suitable number of Russian mechanics to take charge of engines when completed.

The engines are of two classes, 62 are eight-wheel engines for passenger travel, and 100 eight-wheel engines for freight. The passenger engines are of one uniform pattern throughout, so that any part of a machine will fit the same position on any other. They have each 4 driving wheels coupled 6 feet in diameter, and trucks in front similar to the modern engines on the New England and New York roads. Their general dimensions are as follows:

Waist of boiler	47 inches
Length of tubes	10½ feet
Number of tubes	186
Diameter of tubes	2 inches
Diameter of cylinders	16 inches
Length of stroke	22 inches

The freight engines have the same capacity of boiler, the same number and length of tubes with three pair of driving wheels and a pair of small wheels in front. The driving wheels are only 4½ feet diameter, with 18 inch cylinders, and 22 inch stroke, all uniform throughout in workmanship and finish.

The passenger cars have the same uniformity. They are all 56 feet in length by 9½ feet in width, and divided into three classes. The first class carrying 33 passengers, the second class 54, and the third class 80 passengers each. They are all provided with 8 truck wheels each, with elliptic steel springs. The freight cars are all of them 30 by 9½ feet, made in an uniform manner, having 8 wheel trucks under each.

The IMPERIAL SALOON CARRIAGES are of 80 feet length and 9½ ft. width having double trucks with 16 wheels under each. They are finished into *five* different compartments, the Imperial mansion in the centre, 25 feet in length, fitted up with every luxury for sitting or reclining, and with every comfort in every part of it that the most ingenious mind can devise, or the most refined taste can desire. Spacious platforms are provided in front and rear. The whole cost of them exceeds *fifteen thousand dollars each.*

The depots at each terminus, and the station houses and engine houses along the line are on a plan uniform throughout, and on a scale equally imposing. Fuel and water stations are placed at suitable points. Engine houses are provided at the distance of *fifty miles* apart, built of the most substantial masonry, of circular form 180 feet in

diameter, surmounted with a dome, containing stalls for 22 engines each. Engines are to run from one engine house to another only, under one heat and are run back and forth from station to station, so that they are kept constantly in charge of the same persons. Repair shops are attached to every engine house, furnished with every tool or implement, that the wants of the road can require.

Engine drivers have to go through the appropriate training before they are allowed to take charge of an engine, and every arrangement provided, that skill, experience or ingenuity can demand.

Col. Whistler looked forward to the completion of this great work with the eye of a Christian and a man. The greatest work of civil engineering that the world had yet demanded, was entrusted to his care. He never forgot his country or the duties he owed to his reputation. He needed only to await the consummation of his labors, and transport the Imperial Court of Russia from the banks of the Neva to the Palace of the Kremlin in *ten hours* time, to have had a fortune at his disposal from the munificence of the Emperor. Though receiving a large salary during his engagement, this was barely enough in that country to sustain the proper dignity of his position. He resigned these rewards and all the honors of the world at the fearful summons of death, leaving the inheritance of a spotless name to his children, his profession and his country.

It needs no other testimony to show the estimation in which he was held, than the fact that his successor is to be an American also! We confess the pride of our hearts, that our country presents so glorious a spectacle to the genius and the learning of Europe. The fact that the unobtrusive citizen of republican America could, by the force of genius and of merit, attain a rank and a position in the proudest monarchy of Europe, and a power for good beyond any thing that hereditary greatness or titled nobility could command, causes a reflection that gives us far more pleasure than the recollections of any triumph of arms, or any attainment of titles, that are within the gift of power.

Tuscany Furnaces.

The peculiarities of the different cinders and of the changes of the flame at the tunnel head, accompanying the changes in the iron produced, do not appear to vary especially from what is common in other well running furnaces. They are particularly described, however, in the article from which these data are obtained.

The introduction of hot blast has been beneficial in a saving of about one-fourth of the coal, and, what is equally important, in rendering the working more regular and easy, causing almost a total cessation of the derangements to which the furnaces were before subject. The quality of the iron does not seem to be affected by its use.

What has been said in relation to the number and composition of the charges of the furnaces has already given some idea of their daily production in cast iron. This production varies with the quantity of blast, the condition of the interior of the furnace, the quality of the coal used, etc. The following tables, showing the running of the different furnaces at different periods, will fully set forth the highest yield that can be obtained, and the consumption of fuel it requires.

In these tables the same amount of charges is constantly allowed for roasting the ore. The estimate of this is only approximate. The exact calculation of the stock consumed is only made at certain periods of the year from the returns of the quantities of coal delivered to each furnace.

Of the two tables below, the former gives the daily working of the Old Furnace of Follonica during the month of April 1834. The product is large, the furnace being new. This diminishes after the month of April, when the temperature gets higher.

The second table contains the weekly workings of the same furnace during the blast of 1833-34.

NO. 1.

DATE.	Number of charges.	Ore.	Charcoal. For the furnace.	Charcoal. For roasting.	Charcoal. Total.		Product in cast iron. Castings.	Product in cast iron. Pig.	Product in cast iron. Total.
		lbs.	Charge.	Charge.	Ch.	lbs.	lbs.	lbs.	lbs.
April 1....	208	72,485·6	90	14	104	33,633·6	2,277	34,155	36,432
2....	210	72,795·8	91	14	105	33,957·0	2,277	34,155	36,432
3....	208	72,485·6	90	14	104	33,633·6	2,277	34,155	36,432
4....	211	71,346·0	92	14	106	34,280·4	3,036	32,637	35,673
5....	211	72,817·8	92	14	106	34,280·4	4,554	31,878	36,432
6....	185	62,929·0	79	14	93	30,076·2	1,138	30,360	31,498
7....	208	72,787·0	90	14	104	33,633·6	1,518	34,914	36,432
8....	200	71,271·2	86	14	100	32,340·0	1,518	34,155	35,673
9....	201	70,549·6	92	14	106	34,280·4	1,594	33,396	34,990
10....	203	71,366·4	88	14	102	32,986·8	2,277	33,396	35,673
11....	202	71,306·6	87	14	101	32,663·4	2,277	33,396	35,673
12....	204	69,788·4	88	14	102	32,986·8	4,554	30,360	34,914
13....	205	70·510·0	89	14	103	33,310·2	4,933	30,360	35,293
14....	206	73,546·0	89	14	103	33,310·2	1,897	34,914	36,811
15....	208	71,306·4	90	14	104	33,633·6	3,036	32,637	35,673
16....	211	71,306·6	92	14	106	34,280·4	3,036	32,637	35,673
17....	207	71,271·2	90	14	104	33,633·6	2,277	34,914	37,191
18....	210	71,306·4	91	14	105	33,957·0	3,036	32,637	35,673
19....	215	71,306·6	94	14	108	34,927·2	2,277	33,396	35,673
20....	207	71,306·4	90	14	104	33,633·6	3,036	32,637	35,673
21....	213	72,028·0	93	14	107	34,603·8	1,897	34,155	36,059
22....	209	71,306·6	91	14	105	33,957·0	1,897	33,396	35,293
23....	211	72,028·2	92	14	106	34,280·4	1,897	33,396	35,293
24....	207	70,510·0	90	14	104	33,633·6	3,415	31,878	35,293
25....	210	70,510·0	91	14	105	33,957·0	3,036	32,637	35,673
26....	211	70·527·6	92	14	106	34,280·4	3,795	31,878	35,673
27....	220	74,305·0	96	14	108*	34,927·2	2,277	34,914	37,191
28....	200	67,629·0	86	14	100	32,340·0	1,518	36,432	37,950
29....	214	74,305·0	93	14	107	34,603·8	2,277	34,914	37,191
30....	207	72,855·2	90	14	104	33,633·6	3,036	33,396	36,439
May 1....	209	72,188·6	91	14	105	33,957·0	1,518	34,914	36,432
Total.....	6431	22,119,118	2,795	434	3,229	1,043,611·8	79,388	1,033,001	1,112,387
Average	207‡†	71,352	90 16	14	104·16	3,367	2,560	33,322	35,882
	16,340	22,119,438	2,775			1,044,258·6	79,391		

NO. 2.

DATE.	Number of charges.	Ore.	Charcoal. For the furnace.	Charcoal. For roasting.	Charcoal. Total.		Product in cast iron. Castings.	Product in cast iron. Pig.	Product in cast iron. Total.
From 4th Dec.		lbs.	Charge.	Charge.	Ch.	lbs.	lbs.	lbs.	lbs.
to 4th January.	5,384	1,457,918	2,404	448	2,852	922,337	10,967	721,809	732,898
" 11th "	1,363	421,623	584	98	682	220,559	1,935	210,243	212,179
" 18th "	1,343	443,179	575	98	673	217,648	759	221,628	222,387
" 25th "	1,330	436,121	569	98	667	215,708	1,897	216,315	218,211
" 1st February.	1,379	440,600	594	98	692	223,793	7,210	214,038	221,249
" 8th "	1,359	448,492	582	98	680	219,912	4,554	220,110	224,664
" 15th "	1,401	468,684	603	98	701	226,703	6,072	229,218	235,290
" 22d "	1,365	440,220	587	98	685	221,529	6,072	214,038	220,110
" 1st March...	1,437	471,378	621	98	719	232,525	7,590	229,977	237,567
" 8th "	1,485	488,492	646	98	744	240,565	7,590	236,808	244,398
" 15th "	1,484	505,874	645	98	743	240,286	8,349	245,157	253,506
" 22d "	1,479	506,631	654	98	752	243,197	8,349	245,157	253,506
" 29th "	1,431	472,553	620	98	718	232,201	9,108	226,941	236,049
" 5th April..	1,463	507,201	635	98	733	236,612	21,252	233,013	254,265
" 12th "	1,413	489,933	610	98	708	228,967	15,180	229,977	245,157
" 19th "	1,462	503,598	635	98	733	237,052	20,493	231,495	251,988
" 26th "	1,468	497,523	639	98	737	238,346	18,975	229,977	248,952
" 3d May ...	1,476	510,058	642	98	740	239,316	13,662	242,880	256,542
" 10th "	1,404	462,990	607	98	705	227,997	21,252	210,243	231,495
" 17th "	1,373	462,990	589	98	687	222,176	34,914	197,340	232,254
" 24th "	1,395	441,748	601	98	699	226,056	25,806	195,822	221,628
" 31st "	1,338	446,824	574	98	672	217,325	27,324	177,606	204,930
" 7th June....	1,379	414,414	594	98	692	223,793	9,108	198,858	207,966
" 13th "	1,206	373,428	547	98	631	204,065	35,727	184,964	220,693
Total.....	37,617	12,073,556	16,357	§2,702	19,045	6,159,153	324,148	5,763,614	6,087,763
Average per week	1,386	444,814	602	98	700	226,919	11,949	212,339	224,287
Average per day..	198	63,545	86	14	100	32,417	1,707	30,334	32,041

* Error in this line in the original. † In original 204. ‡ The figures in the last line are the calculations from the totals given in the original.

§ In original 2,688. The total in the columns of lbs. in the second table is calculated from the total in kilogrammes in the original without altering the figures, as they might require, to a small amount, by making the additions. Errors in the original I have no data for correcting.

In calculating these tables I have taken the weight "*livre*," as equal to kil. 0·345, this being given in the work as its value: and the kilogramme I have reckoned as 2·2 lbs. avoir. The weight of the ore in the charge, it is seen, is not uniform.

In the last blast, the old Follonica was run only on forge iron; it was blown in at the end of November 1837; the production every two weeks was as follows—

		lbs.
First period. Cold blast.	Up to the 2d December	34,914
	From the 2d to the 15th Dec	360,358
	From the 15th to the 31st Dec	412,896
	From the 1st to the 15th January	451,605
	From the 16th to the 31st Jan	478,929
	From the 1st to the 5th Febrnary	151,800
	Total	1,890,502
	Average per day	28,644
Average consumption (of charcoal) per ton		2,772

After stopping seven days to put in the hot blast-pipes, the blast re-commenced on the 12th February. The production then was—

		lbs.
Second period. Hot blast.	From the 12th to 28th Feb	472,098
	From the 1st to 15th March	432,630
	From the 16th to 31st March	467,544
	From the 1st to 15th April	447,043
	From the 16th to 30th April	402,206
	From the 1st to 15th May	378,789
	From the 16th to 20th May	115,577
	Total	2,715,887
	Average per day	27,997
Average consumption (of charcoal) per ton		2,288

New Furnace of Follonica.—This furnace for the two first years was run almost wholly on foundry iron, and with hot blast. During the blast of 1837–38, commencing the last of November 1837, it made as follows—

	lbs.
Up to the 2d December, 1837	24,288
From the 3d to 15th December	252,619
From the 16th to 31st December	385,097
From the 1st to 15th January, 1838	362,096
From the 16th to 31st January	387,878
From the 1st to 15th February	362,065
From the 16th to 28th February	307,256
From the 1st to 15th March	341,785
From the 16th to 31st March	371,098
From the 1st to 15th April	337,033
From the 16th to 30th April	327,052
From the 1st to 15th May	307,699
From the 16th to 20th May	99,550
Total	3,865,516
Average per day	22,737
Average consumption (of charcoal) per ton	2,803

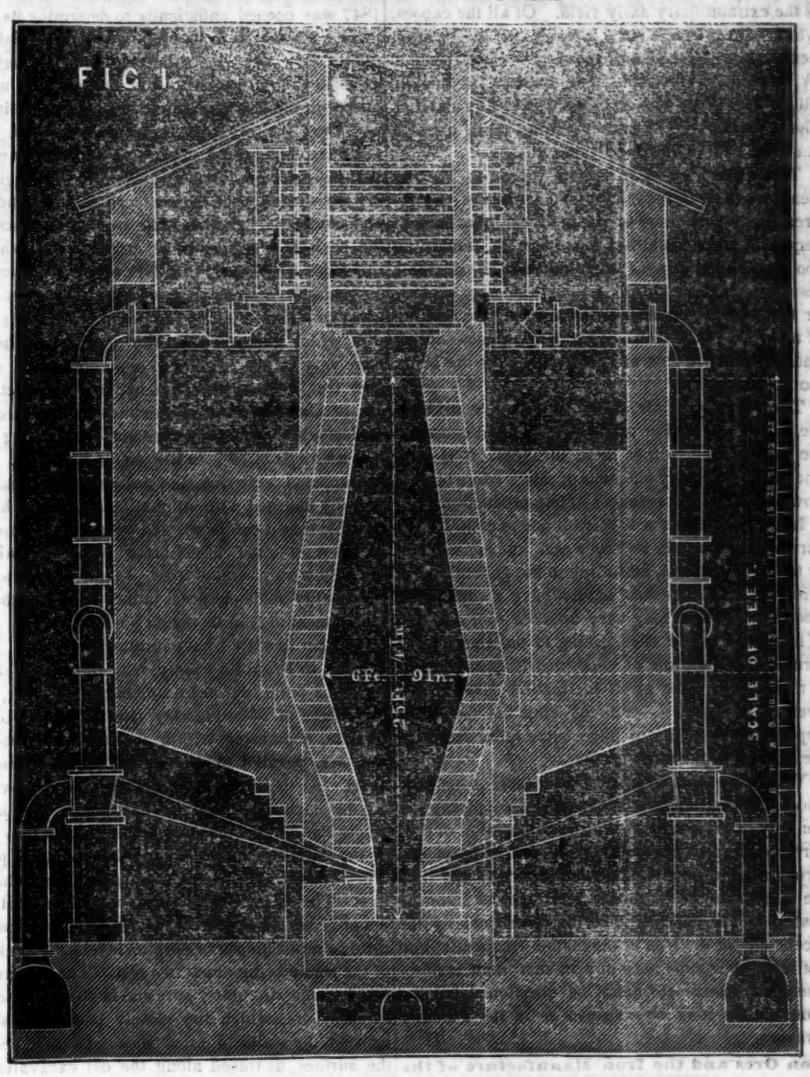
The greatest daily product is when the furnace is making foundry iron; it reaches then even to 28,842 lbs. In making forge pig, shortly after the period included in the above table, the production was from 26,565 to 27,324 lbs.

Tables equally minute are given of the workings of the other furnaces; but their production is not so remarkable as of the two Follonica furnaces. I shall give of these only the summary of the operations of the Cecina during 31 weeks.

Blast Furnace of Cecina; blown cold; but the blast moist; 31 weeks—from 23d November 1835, to 26th June 1836.

No. of charges.	Lbs. of ore.	Charcoal for furnace. Ch.	Charcoal for roasting. Ch.	Total, Ch.	Total, lbs.	Pig iron, lbs.
27,359	7,529,810	13,824	1,085	14,909	4,821,571	4,270,893
Pr week aver. 896	242,888	445·9	35	480·9	155,524	137,768
Per day aver. 128	34,698	63·7	5	68·7	22,218	19,681

Fig. 1.
NEW FURNACE OF FOLLONICA.
Vertical Section Across the Tweres.



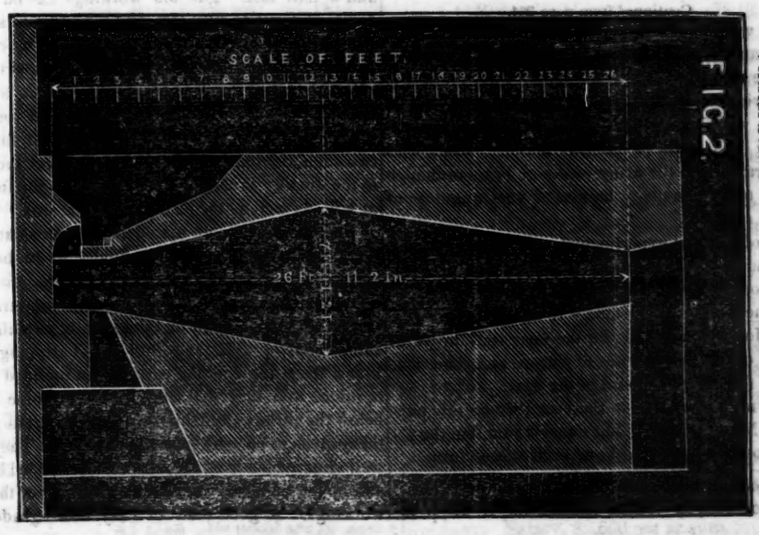


Fig. 2.
OLD FURNACE OF FOLLONICA
Vertical Section from the Hearth to the Back-wall.

From the remainder of this article I shall limit myself to a few extracts.

The most remarkable feature presented in the working of the Elba ores in the Tuscany furnaces, is the extraordinary daily yield. Of all the causes, which can produce such a result, the most prominent certainly is the character of the ore itself; which by its richness, fusibility and facility of reduction, allows the use of a small proportion of flux and fuel. Consequently the furnace contains more ore at a time, than it could of any other quality.

The proper limits of height appear to be very nealy attained in the old Follonica furnace. By increasing the size there is reason to fear, that in consequence of the fusibility of the ore, its remaining too long in the furnace might cause a considerable loss, some oxide of iron passing into the cinders, or the furnace becoming deranged by the refining of a portion of the iron. This is sometimes caused, and slags rich in iron are produced by the ore being too much roasted.

The quantity of air blown in, though considerable, is not regarded as one of the principal causes of the great production of these furnaces; it is only one of the accessory elements of this. More blast is now used for other furnaces of less production.

In conclusion—it will be well not to contract the furnace too much in its lower part, and consequently to have no *hearth*, according to the general use of this word. The boshes should have a sufficiently steep slope, which may vary between four and five of height for one of base, giving to the interior the form of two frustums of cones nearly equal, united at their base. The great inclination given to the tweres—15° to 17°—without being indispensable, appears nevertheless to have some influence upon the amount of the daily product.

With a furnace conducted after these principles, and a blowing apparatus capable of supplying the quantity of air necessary for the combustion of coal corresponding to the quantity of ore to be passed through the furnace (about equal parts); and if at the same time the furnace is run, so as to favor the descent of the charges, clearing out especially the receptacle for the iron at the bottom frequently, and not interrupting the blast any oftener than is absolutely necessary—it cannot be questioned but the same results may be obtained as in the Tuscany furnaces. H.

Iron Ores and the Iron Manufacture of the United States.

MASSACHUSETTS.

Continued from page 324.

The whole quantity of iron ware manufactured in the county of Plymouth by the several furnaces, may be estimated at fifteen hundred tons annually.

In Bridgewater, during the Revolutionary War, cannon were cast solid and bored, through the enterprise and skill of Hon. Hugh Orr, Esq., who also furnished to the army pieces of brass ordnance from 3 to 42 pounders, besides a vast quantity of cannon shot."

One of the first experiments made in this country with anthracite for smelting iron ores in a furnace, was at one of the small furnaces in Plymouth county, in the town of Kingston. In an article in Silliman's Journal, vol XII., for the year 1827, by Wm. Meade, on the Anthracites of Europe and America, may be found an account of the trial.

A furnace was built in the year 1820 for this purpose at Mauch Chunk, in Pennsylvania, but the attempt does not appear to have been successful.†

† Notes on the Use of Anthracite in the Manufacture of Iron, by Walter R. Johnson, A. M., p. 14.

Primary Ores.—At *Bernardston*, in the valley of the Connecticut river, eight miles north from Greenfield, is a bed of magnetic iron ore, which has attracted some attention, and which in the summer of 1847 was opened sufficiently to determine its character. The rocks in its vicinity are mica slate and quartz rock near their junction with the new red sandstone of this valley. But immediately associated with the iron ore is limestone of uncertain age, and over the ore and limestone are strata of an argillaceous flagging stone, both of which and the limestone are not found elsewhere in this region, to my knowledge, near the contact of the red sandstone and the primary rocks. The iron ore is traced up the back of a rolling ridge, cropping out with the limestone beneath it, in a NE. and SW. direction. Where it is exposed to the surface, it has crumbled away to a loose kind of bog ore or ochreous oxide of iron, which makes a great show, as though the bed were very large. Followed to a depth of ten or fifteen feet, a regular stratum of close, compact iron ore of about two feet in thickness is found resting conformably upon the limestone, and dipping with it at an angle of 30° to 40° to the southeast. The ore appears very rich, but unfortunately is so universally charged with sulphur, that it seems hardly possible that it can be worked with profit. The best pieces were found closely mixed with fine grains of the yellow sulphuret of iron. In all other respects the locality holds out great inducements for the establishment of iron works on a small scale.

Another locality I have minutely surveyed, is at *Hawley*, in Franklin county, near the Deerfield river. At a point four miles up Chickley's river, near the village of West Hawley, is a high ridge of mica-slate, containing within its strata two beds of iron ore, parallel to each other, and only ten feet apart. As these beds have not been fairly proved to lap by each other, but the opening in one begins where that of the other ends, it is possible they may be the same bed broken off and thrown out of place. They consist, however, of ores of different characters. The western bed is made up of vertical layers of heavy magnetic ore, mixed with perhaps one-third as much quartz in parallel layers, the thickness of the whole being about two feet. The eastern bed consists of a singularly pure and brilliant micaceous specular ore, which lies closely packed in sheets between the walls of mica slate. Its thickness at the surface, as traced along the old excavation of several hundred feet in length, is from two to two and a half feet. The old workings extend to the depth of forty to fifty feet, and the bed was said to increase in thickness with the depth. The ores, particularly the micaceous ore, were worked to considerable extent many years since in forges, and the iron was considered remarkably soft and tough.—They seem to be well adapted for a blast furnace, two such different varieties offering great facilities to the founder to change the running of the furnace at will, as well as the character of the iron.

The amount of ore may depend somewhat upon the fact whether these prove finally to be beds or veins. So far as they have been opened, they are seen to be regularly included between the strata of mica slate, winding in and out with it, pursuing the same course, NE. and SW., and dipping with it at a steep angle to the east. I am inclined to the opinion, that they will run together at some depth below the surface, and thus crossing the strata prove themselves to be true permanent veins. They are well situated for working, and can be opened by an adit on the vein full one hundred feet below the old workings. A good road of easy down-grade will take the ore to the mouth of Chickley's river, where there is good water power, and a most convenient site for the supply of fuel from the heavily timbered lands on Cold river and up Deerfield river.

The following estimate will give the approximate cost of making a ton of iron at thisplace:

Ore— *Mining* 1½ *tons*.. $2 50		
Trans. 4 *miles* ... 1 00	$3 50	
Charcoal—150 *bush. a.* 4½ *cts*.....	6 75	
Limestone—6½; *labor* $2 50.....	3 12	
Interest, Repairs, Superintendence ...	3 00	
	$16 37	

The cost of charcoal can hardly be underrated, provided wood lands are purchased to the extent of several thousand acres at the price they can now be had at.

The transportation to Greenfield, about sixteen miles, would cost about two dollars, and thence to Boston as much more. Surveys have been made for a proposed railroad to pass up the valley of the Deerfield river, and across to the valley of the Hoosac at North Adams. The high mountain between the two rivers seems to present an insuperable obstacle to such a road. Having crossed it on the stage road on foot at different times with one of Bunten's mountain barometers, I found the lowest point at which it could be crossed, was but little short of 1,600 feet above Deerfield river. It has been proposed to tunnel through—a distance of between three and four miles, and inducements have been offered for this, that valuable mineral beds might be found by the excavations. The probability is small, in this ridge of mica slate and quartz rock, of opening any other beds of value, than of soapstone and serpentine, such as are now found on the east side, and some hematite ore beds near the limestone at the base on the western side.

There are other localities in Massachusetts, which present magnetic ores in small veins. I have examined one near the railroad station at *Chester Factories*, situated on the extreme summit of the high mountain overlooking the road at the south. It is a well defined vein of extremely close texture and hardness, in a quartz rock equally hard and expensive to mine. The vein is only from one to two feet thick, and followed along the edge of the precipice, it is seen to change continually, sometimes running out to mere scattering grains of ore. By a few blasts put in, masses of ore and rock many tons in weight have been thrown down the side of the mountain. An adit level a hundred feet in length driven in at right angles to the vein, would cut it at a depth equally great below the summit; but the expense in driving through a rock of such extreme hardness would hardly be warranted by the promise of the vein.

It is said that this vein may be traced several miles parallel with the course of the Westfield river and the railroad. The location would be a good one for water power, fuel and convenience of transportation.

In the town of *Otis*, too, in Hampden county, are some magnetic ore veins in the granite hills, which I have also examined. They do not seem to be of sufficient size to warrant exploration, otherwise the locality would be an excellent one for a furnace, wood being abundant, and the hematite ores of Tyringham and New Marlborough being but a few miles distant, which would work advantageously mixed with magnetic ores. There are several forges also near by, which require a large amount of pig iron for converting into bars; this they now obtain from Berkshire county.

At *Warwick*, east of the Connecticut river, near the New Hampshire line, are some magnetic ores of good quality, in the granite hills. They have never been worked owing to uncertainty as to their extent.

The Hematite Region.—The Berkshire valley, or rather the group of parallel valleys and ridges, which extends across the western end of the state of Massachusetts into Connecticut and New York on the south, and into Vermont on the north, are composed of an obscure series of rocks, which towards the east gradually pass into the undisputed granitic rocks of the elevated range between the Housatonic and Connecticut river valleys, and towards the west give place to the more recently formed fossiliferous strata of the New York groups. They consist of talcose and mica slates, quartz rock and limestone—all of which are disposed in belts, which run longitudinally with the valleys and ridges, and dip for the most part at a steep angle either to the east or west. The former dip prevails to great extent over a large part of the district, but in the heart of it, as in Stockbridge and Lenox, the dip is subject to continual alterations, and a cross section of a mile in length would represent many different belts of these rocks with frequent changes of dip.

The materials of this formation, that will demand attention for their practical importance, are the *Iron Ores*, found generally accompanying the limestone; the *Limestone* itself; the *Manganese*; and the *Quartz Rock*; and though the second named has proved a source of wealth to the country in the form of marble, as the massive pillars of Gerard College in Philadelphia, the City Hall of New York and many other edifices, public and private, may testify, it is only in relation to its uses as a flux for the iron ores, and to its connection in position with them, that I shall consider it; and the same remark will apply also to the manganese ore and quartz rock.

These different rocks succeed each other in belts like the less disturbed secondary strata met with in the country lying next west. But in consequence of the more active causes of change to which they have been subjected, a greater metamorphic character is impressed upon their structure, and the order of their arrangement too is more disturbed and frequently made quite obscure. Though their position shows them to be but continuations of the lower Silurian rocks of New York state—as the limestone of that of Trenton Falls, and the quartz rock of the Potsdam sandstone—the former has frequently the granular structure of the oldest marbles, and its fossils have disappeared, while the latter in its structure is often as perfect a quartz rock, as that of the granite formations, and in its position bears more resemblance to a rock of igneous intrusion, than one of sedimentary origin merely metamorphosed by exposure to the common agents of change. It is not unusual for the magnesian limestone to be found at point of contact with the quartz rock, firmly attached to it, converted into dolomite of crystalline structure, and containing crystals of sulphuret of iron, while a few feet away from the quartz its color and structure manifest no igneous action. I have also seen at North Lee the limestone exposed around a semi-circle of perhaps a hundred yards in diameter, dipping away from the centre, which centre was occupied by a mound of quartz rock, appearing as though it had been the elevating agent, that had lifted up and thrown back the limestone.—All the great contortions of the strata, so numerous in this section of the country, appear to be connected with the quartz rock, and no rock of undisputed igneous origin any where makes its appearance upon the surface.

The mica slate and the quartz rock form high ridges, and pass into each other by imperceptible gradations. The quartz rock also occurs in a form more resembling dikes. These are seen in passing along the roads, sometimes projecting in almost a vertical wall high above the surface, appearing rather like a work of art than of nature. These walls run with the strata, and are divided by cross seams nearly at right angles into blocks of very regular shape. They afford the most firm and solid stones for building, and sometimes the best for hearth stones; but for the latter purpose those are generally preferred, which are more intermingled with mica.

Sometimes the limestone occurs in the ridges, but the belts in this position are for the most part narrow. The great limestone bands lie in the valleys, or form those gentler and irregular swells, that are found between the high ridges. From the manner in which this rock weathers and its feeble resistance to diluvial action, the surface above it is frequently rolled into hillocks like those known as the diluvial hillocks of the Atlantic coast. The soil upon the little irregular hills of these valleys may lie deep, but it will almost always be found to cover limestone. The outline of the surface is thus a guide to the rock beneath. The limestone is also frequently exposed to view in a long line of low ridge, which is often repeated several times between two of the great mica slate ridges.

Most of the beds of brown hematite now wrought in Massachusetts rest against the limestone ridges or repose upon a stratum of limestone. In Connecticut, however, this does not appear to be the case so generally. The Sharon ore bed is in mica slate, and the Kent ore bed is found in quartz rock and gneiss. The great Salisbury ore bed, too, is described as lying in mica slate; but in the mica slate hills to the north and west of the bed I have traced out a belt of limestone that must pass under the ore and very near to it.

Prof. W. W. Mather, in the annual Geological Report to the State Legislature of New York, for the year 1828, notices the same fact in relation to the association of ore and limestone at the beds near the New York and Connecticut state line. He remarks:

"The geological situation of the ore beds is very constant. Most of the beds, that I have examined, are at the junction of mica or talcose slate with the grey and white limestones. The limestone generally crops out on the west side of the ore beds, and the mica or talcose slate on the east, and both dip at an angle from 20° to 60° to the ESE."

In general in Massachusetts no stratum of rock is found immediately overlying the ore; the drift of the diluvial formation covers it, and it is rarely found included between other strata. When, as is sometimes the case, it rests against the talcose slate rocks, the clays and ochres associated with the ore partake largely of the talcose character, as though they all, ores and clay, might have been derived from the destruction of talcose rocks. Clear quartz, like that found with the slates, is more or less mixed with the ore, sometimes in so great proportion, that the ore is too siliceous for use. The beds of ore, clay and ochre are usually in alternating strata, all dipping conformably with the limestone or other rock which underlies them; from which it appears, that they must have been produced before the strata received their present position, and that, whatever changes may now be going on in the texture and composition of their materials, the causes that brought them together can no longer be here in operation. If the causes are the same with those which collect together the bog ores in ponds, the quantity contained in the beds must be limited, and though there is no instance yet of any one bed having been exhausted, full confidence cannot be entertained that they never will be. The thickness of the strata sometimes reaches eighty or a hundred feet of nearly solid ore, but this great thickness ought perhaps rather to be regarded as a swelling out of the stratum than its regular size, for there is little uniformity in their dimensions, clay passing to ochre and to ore, and ore to the other materials with no great regularity; the lines of the stratification, however, remain distinct, conforming in general to those of the underlying rocks, as mentioned above. The ores of the different beds, though all classed under the general name of brown hematite, or hydrous peroxide of iron, present shades of difference and of excellence, by which one conversant with them can distinguish the locality from hand-specimens. Some are remarkable for their quartzose character, which renders them rather refractory in the furnace; some for their earthy or ochreous or clayey structure, some for their close, compact structure, often occurring in hard smooth nodules; some varieties, which are among the best, are of a honey-combed structure, light and porous, of a reddish color, easily broken to pieces; with this variety are often associated masses of chocolate brown hematite, its structure fibrous in ribboned layers, or in diverging radii. The pieces look like petrified wood, and break with hackly fracture, not unlike wood partially rotten. These are sometimes seen on the outside of a jet glossy black with smooth surface and in mamillary, botryoidal, and stalactical shapes. Long pendant stalactites of the ore are not uncommon at the mines furnishing the best ores;—they occur in groups often acicular, the needles, long and slender, being almost in close contact in the bunches of ore. The clays and ochres, that contain fine ore mined with them, are subjected to a process of washing, which carries off most of the foreign matter and leaves the ore in very small fragments. This is called *wash ore*, and is mixed in the furnace with the coarse lump ore. Varieties from different mines are found to work better in the blast furnace, than the ores from one mine alone. Sulphur rarely occurs to be injurious; phosphoric acid is of frequent occurrence even in the best ores. The following analysis by Mr. Hayes in 1843 is of a specimen from the mine at West Stockbridge:

"Water	10·80
Red oxide of iron	76·18
Oxide of manganese	6·04
Phosphoric acid	2·36
Quartz gangue	3·40
	98·78"

Metallic iron is then 53·16 per cent., being seventenths of the per oxide.

Zinc is of general occurrence in the ores, but in too small quantities to be detected by analysis. In a long blast the in-walls of the furnace near the tunnel head are coated with a layer of the oxide of zinc called a *cadmia*. A specimen of this analysed by Dr. Lewis C. Beck, from a furnace using ore from the Salisbury bed, gave carbon 1·7; oxide iron 2·90; oxide zinc 96·10 per cent. Tons of it accumulate about the furnaces, as they are cleaned out after every blast. H.

☞ Thomas C. Atkinson, Esq., late of the Baltimore and Ohio railroad, has been appointed Chief Engineer of the Orange and Alexandria railroad company. Salary, $2,500 per annum.

Railway Share List,

ON A PAR OF $100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

NAME OF COMPANY.	Length of line.	Length of branches.	Miles finished.	Cost of road and equipment.	Cost per mile.	Capital st'k paid in.	Debts more than surplus.	Ruling grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of dividend in 1848.	Price of shares.	Remarks.
Atlantic and St. Lawrence	146	....	36	In progress.	.....	.....	.....	..	.....	.....	.....	.....	78 a 81	
Androscoggin & Kenneb.	55	....	6	In progress.	.....	.....	.....	..	.....	.....	.....	.....	70	
Albany and Schenectady.	16⅞	....	16⅞	$1,606,196	100,000	.....	.....	..	.....	.....	.....	1 5-9	82a83	
Auburn and Rochester...	78	....	78	2,644,520	34,000	.....	.....	..	175,922	.....	.....	8	86a86¼	
Auburn and Syracuse....	26	....	26	1,125,886	43,300	.....	.....	..	454,721	.....	.....	2 9-10	81 a 82	
Attica and Buffalo.....	31½	....	31½	821,313	26,000	.....	.....	..	172,185	.....	.....	4¼	.....	
Alleghany Portage.....	36	....	36	.....	.....	.....	.....	..	150,959	.....	.....	....	Leas'd to Western railroad.	
Albany and W. Stockb...	38¼	....	38¼	1,924,701	50,000	.....	.....	..	.....	.....	.....			
Annapolis and Elkridge..	21	....	21	.....	.....	.....	.....	..	.....	.....	.....			
Bangor and Oldtown....	11¼	....	11¼	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Boston and Lowell.....	25½	1½	27½	2,013,687	73,200	1,800,000	.....	10 up, 30 down.	461,339	268,707	192,631	8	118	
Boston and Maine.....	74½	5	79½	3,571,832	45,000	3,249,804	249,715	47½	511,627	264,534	247,893	8½	102a104	
Boston and Worcester...	44½	22	66⅝	4,650,393	70,000	4,500,000	255,144	40	716,284	406,303	310,080	8½	106a107½	
Boston and Providence...	41	6½	47½	3,031,106	63,800	2,893,300	26,878	37½	354,375	183,361	170,013	6½	91	
Bristol Branch.....	12	....	12	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Bost., Concord and Mont.	90	....	38	In progress.	.....	.....	.....	..	.....	.....	.....	.....	.....	
Berkshire.....	21	....	21	600,000	28,500	.....	.....	..	.....	.....	.....	7	.....	
Buffalo and Niagara.....	22	....	22	250,396	11,500	.....	.....	..	60,014	.....	.....	6 1-3	.....	
Buffalo and Black Rock.	3	....	3	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Baltimore and Susqueh'a.	36	....	36	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Beaver Meadow.....	26	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Buck Mountain.....	....	....	4	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Baltimore and Ohio...	....	....	178											
Washington Branch.	....	....	31	13,136,940	61,900	.....	.....	..	1,468,828	805,530	663,198	.....	40 a 41¼	
Frederick Branch...	....	....	3											
Calais and Baring.....	3	....	3	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Concord	34	....	34	.....	.....	1,350,000	.....	..	311,326	180,699	130,639	.....	122	
Cheshire	54	....	54	1,905,456	35,306	1,401,739	698,127	60	.....	.....	.....	.....	72	
Connecticut and Passump.	115	....	40	.....	.....	.....	.....	..	.....	.....	.....	.....	85	
Connecticut River.....	50	2	52	1,588,184	30,500	1,234,970	426,013	32	165,242	95,658	69,583	8	97	
Cape Cod Branch.....	28	....	28	587,116	20,900	343,000	217,395	40	.....	.....	.....	.....	62	
Corning and Blossburgh..	....	....	40	.....	.....	.....	.....	..	18,069	.....	.....	.....	.....	
Cayuga and Susquehanna	29	....	29	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Camden and Amboy...	61													
Trenton Branch.....	6½	..	96½	3,200,000	33,000	.....	.....	..	.....	.....	.....	.....	136 a 140	
New Brunswick Br..	29													
Columbia.....	82	....	82	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Camden and Woodbury..	9	....	9	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Cumberland Valley.....	....	....	52	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Carbondale & Honesdale.	26	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Chesterfield.....	12	....	12	150,000	13,500	.....	.....	..	.....	.....	.....	.....	.....	
City Point.....	9½	....	9½	195,867	15,919	.....	.....	..	.....	.....	.....	.....	.....	
Central of Georgia.....	191	....	191	3,222,289	16,800	.....	.....	30	516,252	266,450	250,226	.....	80	
Central of New Jersey...	63	....	36	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Dorchester and Milton...	3½	....	3½	114,224	35,100	72,990	41,234	39	.....	.....	.....	.....	.....	
Detroit and Pontiac.....	25	....	25	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Eastern	54	19¼	73¼	.....	.....	.....	.....	40	.....	.....	.....	8	99½	
Essex (Salem to Law.)...	22½	....	22½	421,574	18,700	263,746	160,958	55	.....	.....	.....	.....	.....	
Erie and Kalamazoo.....	33	....	33	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Fall River.....	42	....	42	1,145,982	27,300	1,050,000	83,177	45	184,344	109,390	74,953	7¼	86	
Fitchburgh.....	49¼	6¾	56	2,945,630	52,300	2,735,910	67,504	..	486,265	286,046	200,219	8½	114½	
Franklin.....	....	....	22	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Greensville and Roanoke.	21	....	21	283,917	13,500	.....	.....	..	.....	.....	.....	.....	.....	
Germantown Branch.....	6	....	6	.....	.....	.....	.....	..	.....	.....	.....	.....	88 a 90	
Gaston and Raleigh.....	96	....	96	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Georgia (Augusta to At'a)	171	....												
Athens Branch.....	....	39	210	.....	.....	.....	.....	40	477,052	267,173	209,879	.....	121	
Harrisburg and Lancaster	37	....	37	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Hartford and New Haven	62	....	62	.....	.....	.....	.....	17	.....	.....	.....	.....	88 a 90	
Housatonic.....	74	....	74	.....	.....	.....	.....	..	.....	.....	.....	.....	104 a 105	
Hudson and Berkshire...	31½	....	31½	818,983	26,500	.....	.....	..	.....	.....	.....	.....	86¼	
Hazleton and Lehigh....	10	....	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Jackson and Brandon....	13	....	13	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Lexington and W. Camb.	6½	....	6½	252,680	38,900	.....	.....	55	.....	.....	.....	.....	.....	
Lowell and Lawrence....	12½	....	12½	283,248	22,650	.....	.....	45	.....	.....	.....	.....	85	
Long Island.....	98¼	....	98¼	2,173,646	22,100	.....	.....	..	.....	.....	.....	.....	22a22¼	
Lockport and Niagara...	23	....	23	221,000	9,700	.....	.....	..	.....	.....	.....	.....	.....	
Lewiston.....	3¼	....	3¼	33,673	10,300	.....	.....	..	.....	.....	.....	.....	.....	
Lykens Valley.....	16	....	16	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Little Schuylkill.....	23	....	23	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Louisa.....	50	....	50	474,137	9,482	.....	.....	..	.....	.....	.....	.....	.....	
Lexington and Frankfort.	29	....	29	450,000	15,600	.....	.....	..	.....	.....	.....	.....	.....	
Little Miami.....	84	....	84	1,513,402	18,000	.....	.....	..	.....	.....	.....	.....	.....	
Machiasport.....	8	....	8	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Morris and Essex.....	....	....	45	.....	.....	.....	.....	80	.....	.....	.....	.....	100	
Mauch Chunk and R. Run	36	....	36	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mine Hill & Sch. Haven.	25	....	25	.....	.....	.....	.....	..	.....	.....	.....	.....	136	
Mount Carbon.....	7	....	7	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mt. Carbon & Pt. Carbon	2½	....	2½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mill Creek.....	6	....	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Montgomery & W. Point	67	....	67	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	

Railway Share List,

ON A PAR OF $100 ACCORDING TO THE LATEST SALES.—CORRECTED EVERY WEDNESDAY.

NAME OF COMPANY.	Length of line.	Length of branches.	Miles finished.	Cost of road and equipment.	Cost per mile.	Capital st'k paid in.	Debts more than surplus.	Ruling grade.	Earnings 1848.	Expenses 1848.	Net earnings 1848.	Rate of dividend in 1848.	Price of shares.	Remarks.
Madison and Indianapolis	86	....	86	.....	.....	.....	.....	..	.....	.....	.....	.....	110	
Mad River and Lake Erie	102	....	102	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Mansfield and Sandusky	....	....	56	$1,106,121	19,700	.....	.....	..	.....	.....	.....	.....	.....	
Michigan Central	....	....	221	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Michigan Southern	....	....	70	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Tecumseh Branch	10	....	....	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Macon and Western	....	....	101	.....	.....	.....	.....	30	.....	.....	.....	.....	55	
Mississippi	....	....	30	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Nashua and Lowell	....	....	14½	525,063	36,200	525,000	.....	13	169,187	109,599	59,588	10	.....	
Northern (Ogdensburg)	....	....	12	In progress.		.....	.....	..	.....	.....	.....	.....	.....	
" (Concord to Leb'n.)	....	....	69	.....	.....	.....	.....	..	.....	.....	.....	.....	80½	
N. Bedford and Taunton	....	....	20	499,065	24,998	400,000	.....	40	136,151	96,220	39,225	6	.....	
Norfolk County	....	....	26	621,488	23,900	414,256	.....	35	.....	.....	.....	.....	30	
N.Y. & N. Haven (14 mls.	Har	RR)	62	.....	.....	.....	.....	..	.....	.....	.....	.....	88¼ a 89	
New Haven Canal	....	....	28	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Norwich and Worcester	59	7	66	2,187,829	33,100	.....	.....	32	218,073	170,297	.....	.....	40	
New York and Harlem	....	....	80½	3,579,567	44,600	.....	.....	..	.....	.....	.....	.....	56 a 57½	
New York and Erie	....	....	200	.....	.....	.....	.....	..	.....	.....	.....	.....	61 a 62	
New Jersey	....	....	29	.....	.....	.....	.....	..	.....	.....	.....	.....	107 a 108	
Newcastle & Frenchtown	....	....	17	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
N. Orleans and Carrollton	....	....	5½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Old Colony	37½	7½	45	2,080,903	46,200	1,601,415	683,648	40	227,350	139,592	87,757	6½	79½	
Oswego and Syracuse	....	....	41	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Portland, Ports. and Saco.	51	....	51	1,350,000	26,400	.....	.....	..	.....	.....	.....	6	96½	
Peterboro' and Shirley	12	....	12	208,311	17,300	.....	.....	..	.....	.....	.....	.....	.....	
Pittsfield and N. Adams.	18½	....	18½	447,755	24,000	.....	.....	66	.....	.....	.....	.....	.....	
Providence and Worcester	43½	....	43½	1,873,895	43,000	.....	573,058	26	193,844	83,889	109,954	.....	82½	
Paterson and Hudson R.	16½	....	16½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Philadelphia and Trenton	28	....	28	.....	.....	.....	.....	..	.....	.....	.....	10	130 a 140	
Philad. Wilm. and Balt.	97	....	97	6,173,851	66,000	.....	.....	..	638,142	382,608	.....	.....	54	
Philadelphia City	6	....	6	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Philad. Germ. and Nor.	17	....	17	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Philadelphia and Reading	93	....	93	.....	.....	.....	.....	..	.....	.....	.....	.....	30½ a 31	
Penn Township	2	....	2	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Petersburg	59	....	59	946,361	16,040	.....	.....	..	163,092	87,131	.....	.....	.....	
Ponchartrain	4½	....	4½	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Pt. Hud., Jack. and Clint.	28	....	28	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Rensselaer and Saratoga	25	....	25	661,910	26,400	.....	.....	..	.....	.....	.....	.....	.....	
Ramapo and Patterson	15	....	....	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Rich. Fred. and Potomac.	75½	....	75½	1,474,004	19,459	.....	.....	..	206,858	100,568	.....	.....	.....	
Richmond and Petersburg	22	....	22	877,484	39,886	.....	.....	..	.....	.....	.....	.....	.....	
Sullivan	28	....	28	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
South Shore	11½	....	11½	255,748	22,200	135,935	128,075	35	.....	.....	.....	.....	33½	
Stony Brook	13	....	13	246,659	19,000	216,829	29,189	40	.....	.....	.....	.....	.....	
Stonington	50	....	50	.....	.....	.....	.....	..	.....	.....	.....	.....	53	
Sarataga and Washington	40	....	40	948,372	23,700	.....	.....	..	.....	.....	.....	.....	.....	
Syracuse and Utica	53	....	53	1,968,036	37,060	.....	.....	..	677,671	.....	.....	.....	121 a 122	
Schenectady and Troy	20½	....	20½	659,668	32,100	.....	.....	..	47,025	.....	.....	.....	.....	
Saratoga and Schenectady	22	....	22	331,036	15,000	.....	.....	..	57,018	.....	.....	.....	.....	
Summit	2	....	2	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Schuylkill Valley	14	....	14	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Shamokin	22	....	22	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Swatara	4	....	4	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Seabord and Roanoke	....	....	76½	1,519,140	20,460	.....	.....	..	.....	.....	.....	.....	.....	
S. Carolina Main Stem	136	....				.....	.....	..	.....	.....	.....	.....	.....	
Columbia Branch	....	68½	242	5,943,678	24,500	.....	.....	..	800,073	308,802	401,271	.....	.....	
Camden Branch	....	37½				.....	.....	..	.....	.....	.....	.....	.....	
Sangamon and Morgan	53	....	53	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Taunton Branch	....	....	11	305,085	27,600	250,000	.....	35	108,101	90,485	17,615	.....	.....	
Tonawanda	43½	....	43½	974,865	22,400	.....	.....	..	218,301	.....	.....	.....	.....	
Troy and Greenbush	6	....	6	273,625	45,900	.....	.....	..	60,055	.....	.....	.....	.....	
Tuckahoe & James River	4½	....	4½	69,322	14,999	.....	.....	..	.....	.....	.....	.....	.....	
Tallahasse and Port L.	....	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Tuscumbia and Decatur	....	....	44	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Utica and Schenectady	78	....	78	3,161,688	40,500	.....	.....	..	795,239	.....	.....	10	122a122½	
Vermont and Mass	69	....	69	.....	.....	.....	.....	55	.....	.....	.....	.....	44½	
Vermont Central	121	....	69	In progress.		.....	.....	..	.....	.....	.....	.....	50 a 51½	
Vicksburg and Clinton	....	....	46	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Western	117½	....	117½	7,975,452	67,700	.....	.....	83	1,332,068	.....	.....	8	106½a107	
West Stockbridge	2½	....	2½	41,515	15,000	.....	.....	..	.....	.....	.....	.....	.....	
Worcester and Nashua	45	....	45	.....	.....	.....	.....	48	.....	.....	.....	.....	52	
Wrightsv, York & Gettys.	....	....	13	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Whitehaven and Wilkes.	....	....	20	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Williamsport and Elmira	....	....	26	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Westchester Branch	....	....	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
West Feliciana	....	....	24	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Winchester and Potomac.	....	....	32	509,415	15,919	.....	.....	..	.....	.....	.....	.....	.....	
Wilmington and Weldon	....	....	163	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Westminister Branch	....	....	10	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	
Western and Atlantic	....	....	100	In progress.		.....	.....	..	.....	.....	.....	.....	.....	
York and Maryland Line.	....	....	21	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	

AMERICAN RAILROAD JOURNAL.

Saturday, June 2, 1849.

Cheshire Railroad.

The *Bunker Hill Aurora* of last week gave some account of the annual meeting of the shareholders of the *Cheshire railroad Company*, held at Keene on the 15th ult. We have not been favored with a copy of the Report of the Directors laid before the meeting, and ordered to be printed, and must, therefore, rely upon the acounts furnished us through the papers for such information as we may desire to obtain, as to the condition of this company.

Our curiosity has been excited from the apparent discrepancy in the statement of its condition in the annual return of the company, submitted to the Massachusetts Legislature. That return gave the amount of capital stock paid in as $1,401,830; its debts at $698,127; making an aggregate of $2,099,-866 expended to the end of the year. The return of the directors is sworn to February 7, 1849. As there is no return of any surplus on hand, it is fair to suppose this sum had gone towards the construction of the road. But the report states the cost of the road at the end of the year 1848 at $1,905,456, which is at the rate of about $35,300 per mile. We should naturally infer, therefore, that the difference between these sums, amounting to the sum of $194,410, has been paid for interest or some extra service, and is not charged against the cost of the road; if so, the proceeding is neither usual or legitimate in our estimation. Interest paid out during the progress of the construction of a road, whether legal or usurious is a proper charge towards the cost of the road. Beside, there were net earnings above expenses amounting to $32,965 which should be added to the cost of the road, because no dividends were made by the company in 1848. If we are right in our conclusions, then the cost of the Cheshire road at the end of the year 1848 was $2,132,831, (or at the rate of $39,496 per mile) instead of $1,905,456 as returned by the Directors.

The Cheshire road was opened to Keene in May, 1848, and finished in January, 1849, and opened for public travel on the 31st of that month. We supposed that the principal expense of constructing the road, therefore, had been charged off at the time of the annual report submitted to the Legislature in February.

It seems by the account in the *Bunker Hill Aurora* that the cost of the road is stated by the report of the Directors, submitted at the annual meeting, at about $2,500,000, or more than $48,000 per mile, making it one of the most expensive roads ever built in New England, having only a single track, and 60 lb rail.

Again, the *Aurora* says the net earnings of the road were $80,033 80, and states its expenses at about $37,000, a sum more than $10,000 than the amount of expenses actually returned to the Legislature.

We have thus noticed this road from no desire to do injustice to its directors, but for the purpose of showing how liable all parties are to jump at conclusions satisfactory to their own peculiar interests. We desire further to point out the danger of putting forth unguarded statements without proper authority, calculated to give an undue value to railroad stocks in the market.

The construction of this road is an achievement worthy of New England enterprise. Whoever has passed over its line cannot fail to have been impressed with the Herculean energy which cut through the granite hills of New Hampshire, this pathway for the iron locomotive.

We well remember the flattering assurances held out by its friends, while raising subscriptions to the stock in 1845, and, that many of our friends put their funds into this enterprise in preference to others nearer home which have since proved more prosperous. The stock of the Cheshire went above par when only partly paid up from the low estimates that had been put forth as to its cost.

The following paragraph is from the Keene Sentinel:

"It was understood that no new stock would be created; but upon a full discussion of the question of the corporate liabilities, it was unanimously voted that the Directors should fund the debt, including interest due stockholders, by issuing bonds, not exceeding $400,000, payable in five years, with interest semi-annually, and convertible into stock within three years, in sums of not less than $100 to those to whom interest is due, and in sums of $500 and $1000 for the balance. Those to whom interest is due may receive bonds at 95 per cent, if they apply previous to July 1st, or can transfer their right of interest. This will enable stockholders who choose to realize the interest due immediately, unless the money market should continue stringent, and the investment of 5 per cent premium would be a desirable one."

This road has a gradient of 60 feet to the mile for more than 12 miles, in attaining the summit between the waters of the Connecticut and Merrimac rivers, far exceeding the grades between Bellows Falls and New York, in the Connecticut valley. The summit grade on the Connecticut river railroad is only 32 feet per mile. This gives an advantage to the trade of the upper valley of the Connecticut, seeking a southern market, over that bound for Boston over the Cheshire and Fitchburg roads.

We hope we may be furnished with a copy of the Report of the Directors.

Iron Wire.

Those who have occasion to use this article in its various applications, are referred to the advertisement of Mr. Washburn, of Worcester, Mass., which is to be found under our advertising head.

Report of the Greenville and Roanoke Railroad Company.

[Proceedings of the Stockholders.]

At the annual meeting of the stockholders of the Greensville and Roanoke railroad company, held at their office on Friday, the 18th day of May, 1849, there was represented in person and by proxy 1103 shares, a majority of the Stock, upon which the meeting was organised by the appointment of Samuel Mordecai as Chairman, and James Ligon, Secretary. The President of the company read to the meeting the report of the Board of Directors, which, on motion, was received and ordered to be printed for the use of the stockholders.

On motion of F. E. Rives, the following resolutions were passed:

Resolved, That the President of the meeting be instructed to call the attention of the Postmaster General to the fact, that the mail is transported on this road both ways in the *night*, and claim the allowance made for night service under the act of Congress of March 3d, 1845.

Resolved, That out of the existing cash funds, the debt of the company be reduced to $4,000, and a dividend of 2½ per cent be forthwith declared and paid to the stockholders.

The meeting then proceeded to the election of officers, when H. D. Bird was unanimously re-elected President and Dr. B. H. May, Dr. John Bragg, A. G. Mellwaine, Edmund Wilkins and Robert Leslie, Directors.

T. N. Lee, as one of the committee appointed at the last annual meeting to examsne the road, reported it to be in excellent condition.

On motion the same Committee of examination was re-appointed, and P. C. Spencer was added to it.

The meeting then adjourned *sine die*.

Signed, SAM. MORDECAI, Chairman.
JAMES LIGON, Sec'y.

REPORT OF THE BOARD OF DIRECTORS.

The Board of Directors submit the following statements of the affairs of the company, and the receipts and disbursements for the 12 months ending April 30th, 1849.

STATEMENT OF THE AFFAIRS.

Capital paid in	$200,000	00
Bonded debt	6,741	40
Profit and loss	85,034	19
	$291,775	59
Cost of railroad	$283,917	94
Debts due the company	350	00
Cash	7,507	65
	$291,775	59

RECEIPTS AND DISBURSEMENTS.

Receipts.

Cash on hand May 1, 1848	$4,634	98
Gross receipts of transportation	30,983	38
	$35,618	36

Disbursements.

Paid expenses of transportation and interest of debt	$20,034	18
Paid of the bonded debt	8,076	53
Balance, cash on hand May 1, 1849	7,501	65
	$35,618	36

Deducting from the receipts of transportation the expenses as given above it left the net income for the 12 months, $10,949 20.

In comparing the business of these 12 months with that of the previous year, it shows a falling off of $6,438 77 in the receipts of transportation. But there is a saving in the expenses of $4,206 46, which reduced the comparative loss to $2,232 31.

Notwithstanding this loss in our business, we paid off last year a large part of our outstanding debt, and have now cash on hand sufficient to pay off the balance, and leave a small surplus. As the party to whom this money is due, is willing to let the principal part of it remain in the funds of the company, we leave it to the stockholders to decide whether they will do so, and commence the payment of dividends at once, or extinguish the debt, and postpone making a dividend for six months.

In announcing this gratifying state of the affairs of the company, and surrendering their trust into the hands of the stockholders, the Board of Directors do not think it amiss to call attention to the fact, that the road, with a comparatively limited business, has paid off a large amount of debt, and been relaid with new iron since it was finished, the whole of which was done out of the profits of transportation alone. The amount of debt paid off has averaged 4 per cent. per annum on the capital paid in; so we think we can safely calculate that the dividend we are about to receive will not be less than that amount. We have every reasonable prospect to encourage us in the belief that it will be greater. The falling off in the receipts of last year was principally owing to a short crop of tobacco, which is the principal article carried on the road, and we may be able to make it up this year. The net income of 1847 was over 6 per cent of the capital.

But we have the further prospect of a great and permanent increase in the business of our road from the construction of the Central Railroad of North Carolina, a work which there is every reason to believe will soon be commenced.

By order of the Board of Directors.

H. D. BIRD, Pres.

☞ The bill guaranteeing the bonds of certain railway companies in Canada, passed to be engrossed in the Legislative Assembly, last week.

Literature.

"*The Miner's Guide and Metallurgist's Directory*;" by J. W. Orton. New York: published by A. S. Barnes & Co., 1849.

This is a little book of eighty pages, containing in very condensed form, accounts of the different ores, including their geological positions, their external, chemical and distinctive characters, their composition, and the modes by which they may be detected. A convenient table of a variety of alloys

is added, which is not often found in works of this kind.

For so small a book it contains a great deal of useful matter well arranged for reference; and being easily carried in the pocket, it will no doubt be a favorite with many, who care not to encounter the heavier scientific works in this department.—The author might, while giving greater accuracy to the description of the external characters of the ores, have condensed this still more by adopting the scale of hardness, such as was introduced by Mohs & Breithaupt. A single figure then represents exactly, what is imperfectly described in several words. H.

Iron Steamers of War.

To the Editor of the London Times:

Sir,—Having had the honor to construct the first iron steam-frigate for Her Majesty's service, and her name having been prominently brought before the public in the discussions that have lately taken place as to the state and efficiency of Her Majesty's steam marine, I beg that you will permit me, in consideration of the importance of the subject, and in justice to myself, as the contractor for the Birkhead, and to the late Board of Admiralty, who ordered her, to state a few facts relative to the introduction of iron as a material for constructing steam vessels for Her Majesty's service, and proofs of its adaption to that purpose. I have been engaged in the construction of iron vessels since 1829, and from that time until 1839, had constructed about 20 vessels of that material; among them were those forming the Euphrates expedition, and several vessels for North and South America, the East Indies Africa, and the Irish inland and coasting trades.

From the favorable reports received of the durability, strength and performance of these vessels, employed as they were in the four quarters of the globe, the Admiralty were induced to favor me with an order to construct a packet for the Dover station, to be brought into competition with a wooden vessel of the same class and power. The annexed abstract, compiled from a return in the naval estimate report of last year, shows that the result of that comparison was not unfavorable to iron as a material for packet steamers:

Statement of first cost and working expenses of Her Majesty's packets Widgeon and Dover.

	Widgeon Wood	Dover Iron
Tonnage, O.M	164	224
Power of engines (horse power	90	90
Number of years at work	10¼	7¼
First cost	£10,121	£10,153
Total cost of repairs of hull	1,844	630
Average repairs of hull per annum	175	84
Total cost of repairs of machinery	5,176	1,565
Average cost of repairs of ditto per annum	493	209
Total cost of repairs of hull and machinery	7,020	2,195
Average cost of repairs of hull and machinery per annum	668	293

In 1839 the Secret Committee of the Hon. Court of Directors of the East India Company intrusted to me the construction of several iron steam-vessels, suitable for river and sea service, and capable of carrying guns; amongst these were the *Nemesis* and *Phlegeton*, armed with 32-pounders, the one of 700 and the other of 550 tons burden. The history of the operations on the coast of China, from the forcing of the inner passage to Canton to the conclusion of the war in the Yang Tse Kang, shows that these vessels under their gallant commanders were distinguished for performing services which no wooden vessel could have accomplished, and, as far as warfare in Chinese waters can demonstrate, proved themselves equal, at the least, to any other steamers then employed in those seas; while the accounts received by every mail from China of their continued employment against pirates and in other services, show that nearly 10 years' wear and tear in a tropical climate has not affected the efficiency of the hulls, armament, or machinery.

The services of these steamers (the first iron vessels that had been armed with heavy guns) induced the agents of the Mexican Government to order the steam-frigate *Guadaloupe*, of 800 tons and 180-horse power, armed with two 68-pounder pivot, and four 24-pounder broadside guns.

The same reasons induced the Admiralty to depute a gentleman of well-known scientific attainments, one of the late School of Naval Architecture at that time holding a situation in Woolwich dockyard, to investigate and report upon the construction of the *Guadaloupe*, and the applicability of iron as a material for steam-vessels of war. Mr. Large spent several weeks at Birkenhead making detailed drawings of the different parts of the vessel, and experiments on the material.

On the successful trial of the *Guadaloupe*, I was called upon by the Admiralty to supply plans and a tender for the construction of a steam-frigate of the first class; and to guide me in designing her, I applied for, and was furnished with, the following statement of the weights she would have to carry, viz:—

	Tons.	Cwt.
Masts, yards, rigging, sails, cables, anchors and stores	99	12
Water, provisions, crew and effects	86	18
Guns, powder and shot	59	4
Coals for 12 days	420	0
Engines (378 horse-power)	342	0
	1,007	14
Estimated hull for an oak ship	750	0
Displacement required for the oak ship, at 15.6 mean draught	1,757	14

The designs I submitted, and which were finally approved, were for a vessel 210 feet long (being about twenty feet longer than any vessel of her class had been built) and 37.6 beam, with a displacement of 1,918 tons on the load water-line of 15 9. The only change made by the authorities at the Admiralty in these designs was in the position of the paddle-shaft, which they ordered to be moved several feet more forward; the change was unfortunate, as it makes the vessel (unless due care is taken in stowing the hold) trim by the head. With this exception, I am answerable for the model, specification, displacement and general arrangement of the hull of the vessel. The *Birkenhead* was launched in 1845; her hull was at that time complete, with the exception of some cabin fittings, estimated at 15 tons. Her launching draught was 9 feet 9 inches, showing the weight of the hull to be 903 tons; leaving for the machinery, stores, &c., given to me at 1,007 tons 14 cwt., 1,000 tons. If these weights had not been exceeded, the vessel would have gone to sea within one inch of her calculated draught—say, 15 feet 9 inches.

The *Birkenhead* was never tried as a frigate.—Before she was commissioned it was taken for granted that iron frigates would not answer, and her destiny was altered to a troop-ship, a poop added to her, and she is loaded with coals and stores generally to two feet beyond her intended load-water line. With all these disadvantages, I am informed by those who have sailed in her that she is a fast and remarkably easy vessel, and I have no hesitation in saying that, if loaded only with the weights for which I was directed to construct her, she will not be excelled in speed and sea-going qualities by any steamer, private or public, of her size and power.

From the foregoing statement it is evident,—

That the Admiralty did not adopt iron in the construction of steam-vessels, even as packets, without due inquiry and investigation. That they waited until the East India Company and foreign government had made the experiment of what iron vessels-of-war would do before ordering any for their service.

That the vessel built was capable of carrying on her estimated load water-line of 15.9 the weights she was designed for.

That the efficiency of the Birkenhead as a steam-frigate has never been tested by an actual trial; and that in all cases where iron vessels have been tried in warfare they have answered admirably.

Apologizing for the length of this letter,

I am your obedient servant,

Birkenhead, April 12. John Laird.

Ohio and Pennsylvania Railroad.

We call the attention of our readers to the advertisement of a letting on the Ohio and Pennsylvania railroad, in to-day's paper.

Terrestrial Magnetism.

The following very interesting article we copy from the London Min'g Jour., one of the most interesting of all our exchanges. As the part that magnetism plays in the economy of nature is a subject attracting very general attention, and as a knowledge of its laws may afford an entirely different solution for some of the most important phenomena from what we have been taught to receive, we shall always endeavor to lay before our readers all facts as they are developed in relation to this principle and the laws of its action.

TERRESTRIAL MAGNETISM;

AND ITS EFFECTS ON THE SEMI-FLUID SURFACE OF THE EARTH.

Not many years ago, "magnetism" was simply considered as that peculiar species of attraction exhibited by the magnetic needle; but now we find that it is a property inherent in *all* matter—the active principle of the mineral kingdom—and it has a most important influence in the general economy of Nature. Indeed, when we duly reflect that our globe is constantly enveloped by this universal subtle power, its presence being long known in every part of the civilised world, it is somewhat surprising that philosophers should have so long neglected this grand primary force, and that they should have assumed other forces, which are not only unknown, but are incapable of giving a satisfactory solution of the multifarious operations daily observed, which are now accounted for by the simple universal law of magnetism. The relations between chemistry and electro-magnetism, between animal and vegetable physiology, are becoming every day more apparent; geology, while explaining the structure and the entombed organic remains of our planet, finds itself dependent on this great natural agent, working in obedience to a fixed law. Hitherto geological science has been designated as a vague and useless doctrine by many of our practical miners; and it is true that primary rocks, with their mineral veins, has been left by speculative geologists, as *terra incognita*, in complete obscurity; but we are happy to observe a change for the better; the science is beginning now to have a more useful and practical bearing, and men are getting more anxious to learn it; and it is to be hoped that with this combined influence, and the diligent accumulation of new facts, such a degree of certainty will be attained, as may enable them to predicate with some confidence, not only questions connected with mineral deposits, but likewise all phenomena which it comprehends.

We have been led to make these observations on this interesting subject, in consequence of repeated applications from our correspondents, requesting us to give a short sketch of Mr. E. Hopkin's new system of geology, which, in consequence of its practical application to mining, and the satisfactory manner in which it accounts for all phenomena connecnected with terrestrial physics, is becoming all but an established system with practical men. The interest has been considerably enhanced of late, owing to the recent discoveries made by the indefatigble Dr. Faraday, corroborating, in a remarkable degree, Mr. Hopkin's general views, as explained in his work.*

Polarity of Rocks.—It is known, from time immemorial, that the rock called *loadstone*, when freely suspended, points north and south, but according to Mr. Hopkins, this is also its natural position *in situ*. It matters not whether the rock be a foot or a mile in length, the effect would be the same; and as all our primary rocks are more or less magnetic, it follows that, were it possible to lift the crystalline film of any given area, and make it to float, and left undisturbed, it would eventually occupy (like the loadstone) precisely the same position, end for end, as it

* "On the Connection of Geology with Terrestrial Magnetism: showing the General Polarity of Matter, the Meridional Structure of the Crystalline Rocks, their Transitions, Movements, and Dislocations," &c.

did before it was removed; its polar grain would return to its natural meridional bearing, the same as the loadstone or magnetic needle. The primary rocks forming the mountains of Regelberg, in Germany, as well as the Andes, and other great ridges, have been known to attract the north end of the needle in the south, and the south end of it in the northern extremity, with so tremendous a power vitalising, so to speak, every inch of the stony substance of the globe, we are able to account for eruptions, upheavals, and other disturbances by which it is visited. Granting this reasonable conclusion, that the globe is a large magnet, exerting the same influence on matter as we find on experimenting with artificial magnets, there must be decomposition and recomposition constantly taking place whilst the curreuts are in circulation, entering in at the north, and emerging again from the south end of the axis.

Whatever substances may be decomposed and converted into gases, are again returned into the earth —nothing can be destroyed; whatever we may consume or reduce become again, by means of this circulating polar force, what they were before they existed in the form of vegetable, stone, or water—active agents in the business of the world, and main supports of vegetable and animal life, and are still susceptible of running again and again the same round, as circumstances may determine. The intensity of the action of the currents must necessarily be as their density. The poles are compressed or flattened by the concentrated power of the diverging and converging currents, and the attractive force varies inversely, as the square or cube increases.—Mr. Hopkins considers that the narrowest limits that we can assign to the polar axis are areas bounded by the Arctic and Antartic circles.

After some excellent and lucid observations on the identity of magnetic and galvanic currents, and the filling of mineral veins by its influence, by reducing the metallic solution in a similar manner as effected by chemical art, the effects of the poles of the globe on all substances within the limits of their actions, metallic deposits, polarity of earthquakes, &c., he proceeds to prove the northward and undulating movement of the earth's surface, *en masse*, by the constant circulating action of magnetic currents. Mr. Hopkins not only establishes that the dry land does not possess that fixity of position, nor is it that solid and immoveable mass as formerly supposed, but that the surface is a flexible crystalline compound, floating on some more dense fluid, and subject to perpetual movements; that the land, as well as the ocean currents, is continually advancing with an undulatory movement *towards the north*, and that the magnetic tension causes those splits and fissures in the crystalline rocks, which, becoming filled with the deposits of metallic solutions, are called mineral lodes or veins. Among the facts referred to in proof of this northern movement of the earth's surface, he notices the fact that all the recent surveys and astronomical observations made in South America, show a northerly increase in latitude. That what has long been called the precession of the equinoxes arises from the same northern advance of the land which at present is also just 19 seconds per annum; and this change in the lapse of a moderate number of years, destroys the arrangement of the catalogue of the stars, and makes it necessary to reconstruct them.

Since the formation of the earliest record, the place of the equinox has retrograded 30°. Even Plato noticed this peculiar and gradual change, and said that the heavens and the stars appeared to change by time; the Egyptian priests also acquainted Herodotus that, from the commencement of the dynasty of their kings (11,000 years,) the sun had apparently changed his course in the heavens four times. He also instances the changes of temperature in northern climes as evidence of this movement. Within the limits of historic records, there is abundant proof of the climate of Europe getting colder; and that the inhabitants of the north are continually setting southward. The first settlers in Iceland found extensive districts of that now dreary country covered with extensive forests of birch and fir; barley and other grain was also cultivated, while the whole island is now a dreary desert. On the discovery, and what is called the settlement of Iceland, relics were found which showed it had been previously inhabited.—There was a country called Vinland, within a few days' sail of Greenland, watered by rivers yielding fine salmon; on the banks of which were trees loaded with delicious fruits: the temperature was mild and the soil fertile. Among the fruits were grapes, from which arose the title "the land of wine." This Vinland was, doubtless, Newfoundland. Wine was formerly made from grapes which grew in the open fields of England and the north of France; and there are ample proofs of a similar reduction of mean temperature in other parts of the continents of Europe and America.

It is in the *northern* regions we find the relics of man and his works, and probably the greater part have disappeared, from the rapid destruction and oxidation of the land at the North Pole. All geological researches prove that in the northern latitudes we find the animal spoils of the southern countries, and the marine exuviæ of the southern seas; but in the southern seas we find no remains of animals, vegetables or shells, belonging to the northern, but those only of the neighboring seas; nor are there the consolidated series of sedimentary rocks in the southern hemisphere. Among the animal remains strewed over Europe, are those of the elephant, rhinoceros, hippopotamos, hyæna, bear, lion, tiger, crocodile, and others, now only found in tropical climes. The remains of vegetation are also abundant and similar; the cycadeæ and pines are of the nature of species now found only in the southern hemisphere. Of the four recent species of araucaria at present known, one is indigenous to the coast of Holland, another in Norfolk Island, a third in Brazil, and the fourth in Chili; extensive remains of similar vegetation are found in all the coal measures of the north. Indeed, in the last volume published by the Government Geologists, under the superintendence of Sir H. De la Bache, we find the description of the flora of the coal fields exactly corresponding to that of the existing flora of the southern hemisphere, that the analogy is complete. The coal formation is, consequently, denominated by Mr. Hopkins the *deposit of the south temperate region—i. e.*, that our coal beds were formed in that zone, and gradually brought, with other depositi, towards the north.

In the coal beds of Melville Island, fossil plants are found, which required south tropical heat and moisture for their growth, and could not possibly have flourished through the cold and six months' night of the arctic regions. An island, or continent moving from the south, would naturally carry its sponges, ferns, corals, and animals, to the north, modified by the changes of temperature through which it passed; and the immense deltas of floating wood in process of formation at the embouchment of the La Plata, Amazon, and other rivers, in the souther zone, to be alternately elevated and submerged during their ages of transit, would seem to be the means of providing an endless succession of coal-beds for the inhabitants of the chilly north.

ENGINEERS.

Arrowsmith, A. T.,
Buckfield Branch Railroad, Buckfield, Me.

Berrien, John M.,
Michigan Central Railroad, Marshall, Mich.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Ford, James K.,
New York.

Floyd-Jones, Charles,
New Yprk and Harlem Railroad Extension, Lithgow, Dutchess Co., N. Y.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

Harry, P.,
Binghamton, New York.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Higgins, B.
Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,
Central Railroad, Savannah, Ga.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,
Androscggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Trimble, Isaac R.,
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

BUSINESS CARDS.

James Laurie, *Civil Engineer,*
No. 23 RAILROAD EXCHANGE, BOSTON, MASS.
Railroad Routes explored and surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

James Herron, *Civil Engineer,*
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.
Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

Cruse & Burke,
Civil Engineers, Architects and Surveyors,
Office, New York State Institution of Civil Engineers,
STATE HALL, ALBANY., N. Y.
Drawings, specifications and surveys accurately executed. Pupils instructed theoretically and practically at a moderate premium.
May 26, 1849.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCAANTS,
No. 139 GREENWICH STREET,
NEW YORK.

To Railroad Companies.
—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.
NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,
Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.
May 16, 1849.

India-rubber for Railroad Cos.
RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.
HORACE H. DAY,
Warehouse 23 Courtlandt street.
New York, May 21, 1849.

To Railroad Companies and Contractors.
FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.
They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,
Prest. Beaver Meadow Railroad & Coal Co.,
Philadelphia.
or, L. CHAMBERLAIN, Sec'y,
at Beaver Meadow, Pa.
May 19, 1849. 20tf

IRON.

Railroad Iron.
OF approved T patterns, weighing 56 to 60 lbs. per lineal yard, made by the best English manufacturers, and under our own specification and inspection.
In store and to arrive. For sale by
DAVIS, BROOKS, & CO.,
68 Broad street.
New York, June 1, 1849. tf
☞ The above will favorably compare with any other rails.

Railroad Iron.
100 Tons 2½ x ½, | 30 Tons Railroad.
All fit to re-lay. For sale cheap by
PETTEE & MANN,
228 South St., New York.
May 16, 1849.

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, *Agent,*
Albany Iron and Nail Works.

Pig and Bloom Iron.
THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Railroad Iron.
RAILROAD IRON & LOCOMOTIVE TIRES imported to order, and constantly on hand, by
A. & G. RALSTON,
4 South Front St., Philadelphia.

Railroad Iron.
THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

Railroad Iron.
THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

Railroad Iron, Pig Iron, &c.
600 Tons of T Rail 60 lbs. per yard.
25 Tons of 2½ by ½ Flat Bars.
25 Tons of 2½ by 9-16 Flat Bars.
100 Tons No. 1 Gartsherrie.
100 Tons Welsh Forge Pigs.
For Sale by A. & G. RALSTON & CO.
No. 4 So. Front St., *Philadelphia.*

Railroad Iron.
THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.
Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.,
45 North Water St., Philadelphia.
March 15, 1849.

Railroad Iron.
THE Undersigned offer for sale 3000 Tons Railroad Iron at a fixed price, to be made of any required ordinary section, and of approved stamp.
They are generally prepared to contract for the delivery of Railroad Iron, Pig, Bar and Sheet Iron—or to take orders for the same—all of favorite brands, and on the usual terms. ILLIUS & MAKIN.
41 Broad street.
March 29, 1849. 3m.13

Railroad Iron.
THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to
COOPER & HEWITT, *Agents.*
17 Burling Slip, New York.
October 30, 1848.

Iron Wire.
REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by
ICHABOD WASHBURN.
Worcester, Mass., May 25, 1849.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.
THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.
Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.
Chilled Wheels for Cars, Tucks and Tenders, made from the toughest iron.
Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by
E. S. NORRIS.
April 11, 1849.

P. S. DEVLAN & CO's Patent Lubricating Oil.
THE Subscribers invite the attention of Railroads, Steamboats, Machinists, etc., to the above article of Oil; they are prepared to supply it in any quantity. Certificates of its superiority over all other oils, from several of the largest Works and Railroads, can be seen at our office. KENNEDY & GELSTON,
5½ Pine street, New York,
Sole Agents for the New England States and State of New York. 1y14

INCORPORATED BY ACT OF PARLIAMENT.
NOTICE is hereby given, that an ASSESSMENT OF ONE SHILLING AND THREE PENCE PER SHARE has been levied on the *STOCK OF THE UPPER CANADA MINING COMPANY*—one half thereof, or Seven Pence Halfpenny per share, being payable, at the office of the Company, in Hamilton, or to Messrs. W. & J. CURRIE, Agents, Wall St. New York, on the *First Day of April* next, and the other half on the *First day of July* next ensuing. By order, J. D. BRONDGEEST,
Secretary U. C. M. C.
Hamilton, 24th February, 1849. 12tf

WILLIAM JESSOP & SONS'
CELEBRATED CAST-STEEL.
The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.
All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.
Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

Large Pumps.

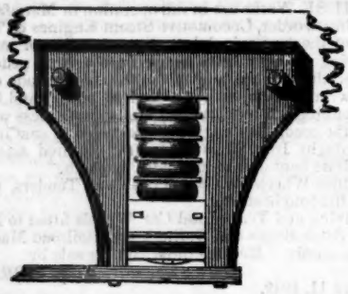
THE Boston Water Commissioners offer for sale a large number and variety of Wooden Square Pumps, used in clearing excavations from water during the construction of the Aqueducts.

Also Two Large Screw Pumps, each 25 feet long and 2½ feet in diameter.

For further particulars, enquire at the office of the Water Commissioners, 119 Washington St., Boston, or of E. S. Chesborough, West Newton.

May 19, 1849. 6w20

Patent India-rubber Springs.



FULLER & CO. beg that parties interested in the use of these Springs will not be misled by exparte statements, but will examine the actual Patents and judge for themselves.

The statements made by Messrs. Crane & Ray shall be treated seriatim.

They claim to have first introduced India-rubber Springs about two years since, whereas they were used by Fuller & Co. nearly four yea ago.

They claim the exclusive right to use Sprngs. They have no right whatever; every spring they make is an infringement upon Fuller's patent, dated 1845. They claim the sole right to make India rubber, and apparently think because a species of India-rubber was patented some years since, that no person can make any other now. A patent was *granted in January last* to Messrs. Tyer & Helm for a new and improved kind of Vulcanized rubber which is used by Fuller & Co.

Fuller's springs it is needless to say are in very general use, although Messrs. Crane & Ray pretend that they know of only one or two instances. Fuller & Co. guarantee all parties who use their springs.

As to the Legal proceedings—an action has been commenced against one company for an alleged infringement of Goodyear's patent, but is being defended with every prospect of success. An action has also been commenced by Fuller & Co., against parties for an infringement of Fuller's patent, and *this will be done in every case of violation.*

In every case in which Fuller's spring has been applied, it has been pronounced superior to that made by Mr. Ray, and this fact induces Messrs. Crane & Ray to claim the right of using it. They attempt to lead the public from the real question at issue, by producing a Deposition as to Mr. Ray having *tried to make* a spring which Mr. Fuller *did make* and patent. If Mr. Ray did invent a spring in 1844, why did he not apply for a patent, and not wait until 1848, when his application was rejected!

Mr. Knevitt has never stated that the springs were put on by him, which are refered to in Mr. Hale's article, but he does state that those springs are made according to Mr. Fuller's specification, and consequently are an infringement upon it. The article of Mr. Hale in the Boston Advertiser, quoted by Messrs Crane & Ray, was followed immediately by a letter in the same paper, from Mr. Knevitt, setting forth the facts of the case.

The springs refered to were put on by Mr. Ray before Mr. Knevitt came to the United States; when he arrived he gave Mr. Ray notice not to proceed further in making or vending such springs; Mr. Ray then said he did not wish to infringe, and would not continue to do so, and he then contrived an India-rubber and Air spring which totally failed.

In the selection of their first agent, Fuller & Co. were particularly unfortunate, and their reason for adverting to it is simply that it may tend to throw light on subsequent transactions, and furnish a reply to the remark, "that this opposition was invited by their own delay in getting the thing to work." The individual refered to undertook the agency for Fuller's springs, and left Liverpool on the 1st January, 1847, furnished with a complete set of drawings, models, etc., and every necessary instruction to make arrangements respecting the supply of material, and to have it at work within the time limited by law; but *from that hour to the present, not a single communication has been received from the said agent.* Some of their models, however, they have traced into the hands of parties now seeking to invade their rights, and by whom they understand they have been exhibited as specimens of their own invention.

The superiority of Fuller's spring is implied in the offer of the New England Car Co. to make springs upon his principle (now that a preference is given to the disc and plate form) and this notwithstanding the fact, that Fuller & Co. have a patent, and that Mr. Ray's application for one was rejected. The public can judge which company's course has been the most honorable, or whose statements are entitled to consideration.

Fuller's springs can be obtained of *Mr. Knevitt* the Agent, at 38 Broadway New York, and of *Messrs. James Lee & Co.*, 18 India Wharf, Boston.

May 26, 1849.

Improvement for Lessening Friction on Railroads.

THE Improvement sometime since perfected for lessening the friction on rails, cars and engines, having been fairly tested, and found to possess all the advantages anticipated, is now presented to the notice of parties connected with railroad companies.

The article used is India-rubber, chemically combined with a metalic substance, in such a manner as to give it a remarkable degree of strength and durability, and the peculiar quality of not being affected by abrasion, or the extremes of either heat or cold.

The advantages derived from its application are briefly as follows:

1st, A sensible lessening of friction on the rails, and of wear and tear to the machinery of the locomotives and cars.

2d, A general benefit to the whole superstructure of the road, by the trains passing with an easier and less jarring action.

3d. A greater degree of comfort to the passengers, owing to the exemption from the usual loud and annoying rattling of the cars and engines.

4th, An increased speed to the trains, with the same power, arising from the uniform steadiness and decrease of friction to the rails, cars, etc.

And lastly, a material saving in the annual expenditure for repairs.

A drawing, illustrating the application of India-rubber to this purpose, will be found in the American Railroad Journal, under date of May 26, 1849.

The annexed certificate, among others in the hands of the patentee, will explain the nature of this improvement.

"J. ELNATHAN SMITH, Esq.,

Dear Sir: In relaying the New Orleans and Carrollton railroad, I applied Vulcanized India-rubber in the Chairs, under the *joints* of the rails, of 1-10 of an inch thick, with the happiest result. The road thus laid has been in constant daily use since August last, and I cannot perceive the least deterioration. The rubber acts admirably as a *wedge*, in the way I use it, as well as a perfect preventive of the battering down of the ends of the rails. It also makes the road unusually smooth—for in riding over it I have not been able to detect the joints; and I have had the assertion of several observers of such matters to the same effect. We are delighted with it here, and think it a very important simple, and cheap acquisition in the permanent maintenance of railroads.

The annexed sketch of the chair I use, will give an idea how the rubber acts as a wedge. They weigh 13 lbs. and are 7 inches square—are accurately cast to one size, and when in their places, ready for the rails, I place a piece of the rubber 1-10 of an inch thick thereon. The width of the base of the rail, and the length of the chair is 3½ by 7 inches. The rail is then forced in *sideways*, which, owing to there being but 1-16 of an inch space for 1-10 inch thickness of rubber, requires considerable pressure; consequently, the elasticity keeps the rail tight up to the clip of the chair A. I have closely observed the joints when the engine passed over them, but could not detect any depression of the rails separate from each other.

I find that the cost for the rubber will be about 7 cts. per *joint*, which for 21 feet rails, will be about $35 per mile, *exclusive of the patent right.*

The rubber I use is of excellent quality, and made in pieces of about 20 to 30 yards long, and 25 inches wide, (1-10 of inch thick,) and weighs about 4 lbs. to the yard in length. I cut 7 pieces in the width, consequently 7 inches in length makes 7 pieces or 7 yards, weighing about 28 lbs., will give 252 pieces, or half a mile of road with 21 feet rails. I am respectfully yours,

JOHN HAMPSON,

Eng. New Orleans and Carrollton Railroad."

New Orleans, March 14, 1849.

Orders received and full information by

J. ELNATHAN SMITH, Patentee,

22 John street,

New York, May 26, 1849.

LAP—WELDED WROUGHT IRON TUBES FOR TUBULAR BOILERS,

FROM 1 1-2 TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers

THOMAS PROSSER,

Patentee.

28 Platt street, New York.

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats. Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,

a45 President of the Newcastle Manuf. Co.

TO RAILROAD COMPANIES AND MANUfacturers of Railroad Machinery. The subscribers have for sale American and English Bar Iron, of all sizes; English Blister, Cast, Shear and Spring Steel; Juniata Rods; Car Axles, made of double refined iron; Sheet and Boiler Iron, cut to pattern; Tires for Locomotive Engines, and other railroad carriage wheels, made from common and double refined B. O. Iron; the latter a very superior article. The Tires are made by Messrs. Baldwin and Whitney, Locomotive Engine Manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

a45 N. E. cor. 12th and Market sts., Philad., Pa.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,

Reading, Pa.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, *Patterson, N. J.* The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,

Patterson, N. J., or 60 Wall St., New York.

Fuller's Patent India-Rubber Springs.

THERE *can now be no ground of opposition whatever to these Springs.* The Commissioner of Patents has not only rejected the application for a Patent for a similar Spring, but *a Patent has just been granted for an entirely new species of India Rubber*, the quality of which can be surpassed by no other kind, as the experiments which have lately been publicly made, have fully proved. No extremes of heat or cold can effect it, nor will any amount of pressure permanently alter its shape. This Patent refutes the statement of the "New England Car Company" as to their sole right to use India Rubber.

The Spring (composed by alternate layers of India Rubber Discs and Metal Plates) is superior to any other form of Spring, for several reasons: It is the lightest, the most simple and most durable—there being less friction in this than in other kind; it can be regulated to any extent desired. A less quantity of Rubber is required in this form to make a good spring than in any other because each disc or ring of India Rubber is firmly supported by metal plates, and forms in itself a distinct sprin nor is any spiral spring required. The Patentee [illegible]ently able to supply efficient springs at a less cost [illegible] any other parties can do. Purchasers are guaranteed in the use of these springs.

The New England Car Company have *no* right to make an India-rubber Spring with a Bolt through the centre. All companies using such a spring are liable to an action.

Fuller's spring has been used nearly four years with complete success. It is applicable equally to Passenger and Freight Cars, to Locomotives and Tenders.—Bumpers and Draw Springs are always kept on hand, which merely require screwing to a car. It has lately been applied also to several kinds of *Machines.*

Action will be brought against all persons infringing upon these patents.

The subscriber will show Models and Drawings of the various modes of application to Cars, Machines, Omnibuses, &c. G. M. KNEVITT, Agent.

Principal office, No. 38 Broadway, New York.

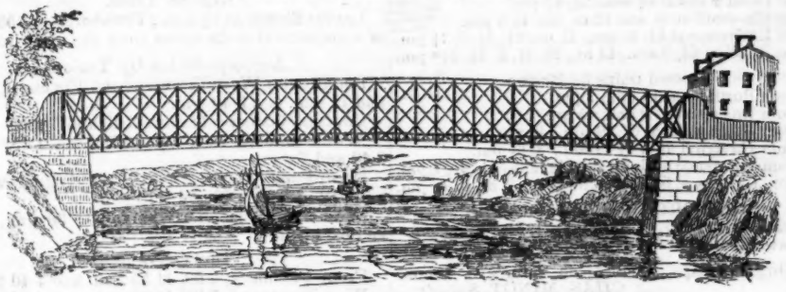
Branch office, Messrs. James Lee & Co.'s, No. 18 India Wharf, Boston.

Mr. Hale, the President of the Boston and Worcester Railroad, wrote an article concerning Fuller's Springs. The "New England Car Company" take the liberty of publishing that article, omitting, however, a very important part; it is therefore given in full now, and the portion omitted by the New England Car Company is printed in italics, that the public may judge the manner in which this "company" pervert Mr. Hale's meaning.

[*From the Boston Advertiser of the 7th June*].

INDIA RUBBER SPRINGS FOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad.—It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it seems to be admirably adapted, and we do not learn that during that period in which it has been used, any defect has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. *Each spring is composed of several circular layers of rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced into general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper.*"



RIDER'S PATENT IRON BRIDGE.

THE RIDER IRON BRIDGE having been fully tested on the Harlem Railroad, by constant use for about eighteen months, and found to answer the full expectations of its most sanguine friends, is now offered to the public with the utmost confidence as to its great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time is so arranged as to secure the combined principles of the *Arch, Suspension and Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

THE IRON RIDER BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, made under the above patent, at short notice, and at prices far *more economical* than the best wood structure, and on *certain conditions*, the first cost may be made the same as wood.

Models, and pamphlets giving full descriptions of the RIDER BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 74 BROADWAY, *up stairs*, or of W. RIDER & BROTHERS, 58 *Liberty Street*, where terms of contract will be made known, and where orders are solicited.

M. M. WHITE,
Agent for the Company.

November 25, 1848.

RAILROAD India-rubber Springs.

IF any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metallic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.

May 24, 1849.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1¼ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by IRVING VAN WART,
12 Platt street, New York.

JOB CUTLER, *Patentee.*

☞ These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

F. M. Ray's Patent India-rubber Car Springs.

India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, *as will invariably be done in every case of such violation.*

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of *Goodyear's Metallic Rubber*, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevitt, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

MR. HALE:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Spaings upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanised India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most fo the other roads terminating in this city."

And yet Mr. Knevitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

Devlan's Machinery Oil.

THE Subscribers, Agents for P. S. Devlan & Co's "Patent Lubricating Oil"—price 80c. per gallon 4 mos. or 3 per cent off for cash.

We refer to the following certificate of Messrs. Norris Brothers, in whose works, any one by calling can see the oil in use and judge for themselves.

NORRIS' LOCOMOTIVE WORKS. }
Philadelphia, April 2, 1849. }

We have been using throughout our Works, during the last six weeks, "Devlan's Lubricating Oil," and so far as we have been able to judge from its use, we think it preferable to the sperm oil generally used, for both heavy and light bearings. NORRIS, BROTHERS.

For sale by ALLEN & NEEDLES,
22 & 23 South Wharves,
14tf Philadelphia Pa.

Coal.

CUMBERLAND SEMI-BITUMINOUS COAL superior quality for Locomotives, for sale by
H. B. TEBBETTS,
No. 5½ Pine St., New York.
May 12, 1849. 1m19

RAILROADS.

NORWICH AND WORCESTER RAILROAD.
Summer Arrangement.—1849.


Accommodation Trains daily (Sundays excepted.)


Leave Norwich at 5 am., and 5 pm.
Leave Worcester at 10½ am., and 4½ pm., connecting with the trains of the Boston and Worcester, Providence and Worcester, Worcester and Nashua and Western railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston daily, Sundays excepted, at 5 pm.—At New York from pier No. 1, North River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6½ am., from Norwich at 9 am.

32 1y S. H. P. LEE, Jr., Sup't.
May 20, 1849.

EASTERN RAILROAD, Spring and Summer Arrangement. On and after Thursday, March 15, '49,


Trains will leave Eastern Railroad Depot, Eastern Avenue, Commercial-street, Boston, daily, (Sundays excepted.)


For Lynn, 7, 10, a.m., 12, 2½, 3, 4½, 5½, 7, p.m.
Salem, 7, 10, a.m., 12, 2½, 3, 4½, 5½, 7, p.m.
Manchester, 10, a.m., 3, 5½ p.m.
Gloucester, 10, a.m., 3, 5½ p.m.
Newburyport, 7, a.m., 2½, 4½, 7, p.m.
Portsmouth, 7, am., 2½, 4½, pm.
Portland, Me., 7, am., 2½, pm.

And for Boston,

From Portland, 7½, am., 3, pm.
Portsmouth, 7, 9½*, am., 5½*, pm.
Newburyport, 6, 7½, 10½*, am., 6*, pm.
Gloucester, 7, am., 2, 5½ pm.
Manchester, 7½, am., 2½, 5½ pm.,
Salem, 7, 8*, 9*, 10½, 11-40*, am., 2½, 6*, 7* pm.
Lynn, 7½, 8½*, 9½*, 10½, 11-55*, am., 3, 6½*, 7½*, pm.

* *Or on their arrival from the East.*

MARBLEHEAD BRANCH.

Trains leave
Marblehead for Salem, 6½, 8½, 10½, 11-25, am. 2½, 4½, 5½, pm.
Salem for Marblehead, 7½, 9½, 10½, am., 12½, 3½, 5½, 6½, pm.

GLOUCESTER BRANCH.

Trains leave
Salem for Manchester at 10½, am., 3½, 6½ pm.
Salem for Gloucester at 10½, am., 3½, 6½, pm.
Trains leave
Gloucester for Salem at 7, am., 2, 5½ pm.
Manchester for Salem at 7½, am., 2½, 5½, pm.
Freight trains each way daily. Office 17 Merchants' Row, Boston.
Feb. 3. JOHN KINSMAN, Superintendent.

BOSTON AND MAINE RAILROAD.


Spring Arrangement, 1849.
Outward Trains from Boston


For Portland at 6½ am. and 2½ pm.
For Rochester at 6½ am., 2½ pm.
For Great Falls at 6½ am., 2½, 4½ pm.
For Haverhill at 6½ and 12 m., 2½, 4½ 6 pm.
For Lawrence at 6½, 9, am., 12 m., 2½, 4½, 6, 7½ pm.
For Reading 6½, 9 am., 12 m., 2½, 4½, 6, 7½, 9½* pm.

Inward trains for Boston
From Portland at 7½ am., 3 pm.
From Rochester at 9 am., 4½ pm.
From Great Falls at 6½, 9½ am., 4½ pm.
From Haverhill at 7, 8½ 11 am., 3, 6½ pm.
From Lawrence at 6, 7½, 8½, 11½, am., 1½, 3½, 7 pm.
From Reading at 6½, 7½, 9, am., 12 m., 2, 3½, 6, 7½ pm.

MEDFORD BRANCH TRAINS.
Leave Boston at 7, 9½ am., 12½, 2½, 5½, 6½, 9½* pm.
Leave Medford at 6½, 8, 10½ am., 2, 4, 5½, 6½, pm.

* On Thursdays, 2 hours; on Saturdays, 1 hour later. CHAS. MINOT, Super't.
Boston, March 27 1849.

BOSTON & LOWELL RAILROAD.
Passenger trains run as follows, viz:


Express Trains.

Leave Boston at 7½ a.m., 12 m. and 5 p.m.
Leave Lowell at 8 a.m., 12 m. and 4 55 p.m.—or on the arrival of the train from Nashua.

Accommodation Trains.

Leave Boston at 7 5 and 9½ a.m., 2½, 4½ & 6½ p.m.
Leave Lowell at 7 and 10 a.m., 2. 5 and 6 p.m.

Woburn Branch Trains.

Leave Woburn Centre at 6, 7, 9, 10 a.m., 1½ and 4½ p.m.
Leave Boston at 8, 11½ a.m., 3, 5½ and 7 p.m.
On Saturdays, the last train leaves at 8 instead of 7 p.m.

The trains from Boston at 7½ a.m., and 5 p.m., and from Lowell at 4 55 p.m., do not stop at Way Stations. The trains from Lowell at 8 a.m. and from Boston and Lowell at 12 m., stop at no way station except Woburn Watering Place, and there only for Upper Railroad Passengers.

WALDO HIGGINSON,
Agent Boston and Lowell Railroad Cor.
Boston March 5, 1849. 22tf.

ESSEX RAILROAD—SALEM to LAWRENCE, through Danvers, New Mills, North Danvers,


Middleton, and North Andover.
On and after Thursday, March 15,


trains leave daily (Sundays excepted,) Eastern Railroad Depot, Washington-st.

Salem for South Danvers at 8, am., 12.45, 3.45, 6.30, pm.
Salem for North Danvers at 8, am., 12.45, 3.45, pm.
Salem for Lawrence, 8, am., 3.45, pm.
" North Andover 8, am., 3.45, pm.
" Middleton 8, am., 3.45, pm.
South Danvers for Salem at 6.45, 10.15, am., 2·15, 5.45, pm.
North Danvers " 10, am., 2, 5.40, pm.
Middleton " 9 45, am., 5 15, pm.
North Andover " 9.20, am., 5.05, pm.
Lawrence " 9 15, am., 5, pm.

JOHN KINSMAN, Superintendent.
Salem, Oct. 2, 1848.

BOSTON AND PROVIDENCE RAILROAD.
On and after MONDAY, APRIL 2d, the


Trains will run as follows:—


Steamboat Train—Leave Boston at 5 pm Leaves Providence on the arrival of the train from Stonington.

Accommodation Trains—Leave Boston at 8 am., and 4 pm. Leave Providence at 8½, a.m., and 4, pm.

Dedham Trains—Leave Boston at 8½ am, 12 m., 3½, 6½, and 10½ pm. Leave Dedham at 7,9½, am., 2½, 5, and 8 pm.

Stoughton Trains—Leave Boston at 1 am., and 5½ pm. Leave Stoughton at 11½ am., and 3½ pm.

Freight Trains—Leave Boston at 11 am., and 6 pm. Leave Providence at 4 am., and 7.40 am.

On and after Wednesday, Nov. 1, the DEDHAM TRAIN will run as follows: Leave Boston at 9 am., 12 m., 3, 5½, and 10½ pm. Leave Dedham at 8, 10½, am., 1½, 4½, and 9 pm.

WM. RAYMOND LEE, Sup't.

FITCHBURG RAILROAD.—
On and after Monday, April

23d, 1849, Trains will run as follows:

Express Train.

Leaves Boston at 7½ a.m.; Fitchburgh at 3 55 p.m. or upon arrival of the trains from the upper roads.

Accommodation Up Trains.

For Groton, West Townsend and Fitchburg, 6 50 and 11 a.m. and 3 40 p.m.
Concord, 6 50 and 11 a.m., 3 40 and 7 p.m.
Waltham, 6 50, 7 35, 10 and 11 a.m., 1 45, 3 25, 3 40 and 7 p.m.
Fresh Pond, Mount Auburn and Watertown, 9 a.m., 12 m. and 2 20 and 7 15 p.m.
West Cambridge and Lexington, 9 30 a.m., 2 30 and 6 30 p.m.

Down Trains.

From Fitchburg, 7 50, 11 55 a.m. and 4 40 p.m.
West Townsend, 7 30, 11 55 a.m. and 4 40 p.m.
Groton, 8 20 a.m., 12 30 and 5 15 p.m.
Concord, 6 25 and 9 a.m., 1 10 and 5 55 p.m.
Waltham, 6 50, 8 15, 9 25 and 11 a.m, 1 35, 2 35, 4 30 and 6 20 p.m.
West Cambridge and Lexington, 7 and 11 15 a.m and 4 45 p.m.
Fresh Pond, Mount Auburn and Watertown, 7 15 and 10 a.m., 1 30 and 4 30 p.m.
The 6 50 a.m. up train will not stop at Stony Brook, Lincoln and Lunenburg.
The 11 a.m. up train will not stop at Weston and West Acton.
The 3 40 pm. up train will not stop at Charlestown Porters, West Cambridge and Lunenburg.
The morning train down will not stop at Lunenburg and Lincoln.
The evening train down will not stop at Lunenburg and Stony Brook.

S. M. FELTON, Superintendent.
Bostor, April 21, 1849. 22tf

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.
Jan. 20, 1849.

NEW YORK AND ERIE RAILROAD. EXTENDED TO OWEGO.


On and after the 1st June, the trains will run as follows, daily, excepting Sundays: For Passengers—Through trains will leave New York for Oswego, by steamboat, from the Duane-st. pier, at 7½ o'clock, A.M. and 5 o'clock, P.M. stopping at Ramapo Station, Chester, Goshen, Middletown, Otisville, Port Jervis and all the way stations west of the last-named place; and will leave Oswego on and after the 4th June, at 6 A.M. and 7 P.M.; and Binghamton, on and after the 1st June, at 7 A.M. and 8 P.M. arriving in New York at 7½ P.M. and 8½ A.M. stopping at all the way stations between Oswego and Port Jervis; and, east of Port Jervis, at Otisville, Middletown, Goshen, Chester, Ramapo Station and Spring Valley. Way Trains for Port Jervis and all the intermediate stations, will leave New York, by steamboat Thomas Powell, from Duane-st. pier, at 7½ A.M. and 4 P.M.; and will leave Port Jervis at 6 A.M. and 4 P.M. Milk Trains—A train leaves Otisville at 5½ A.M. arriving in New York about 11. The afternoon milk is taken by the train leaving Port Jervis at 4 o'clock P.M. and arriving in New York about midnight. Freight—Freight leaves New York every night for all the regular stations on the road. A freight train will leave Owego every morning at 6 o'clock; and another will leave Port Jervis, as usual, every morning at 8 o'clock, with market freight, &c. JAS P. KIRKWOOD,

May 30, 1849. Superintendent.

NEW YORK & HARLEM RAILROAD, DAILY. WINTER ARRANGEMENT.


ON and after December 1st, 1848, the Cars will run as follows, until further notice:—

Trains will leave the City Hall, New York, for Harlem and Morrisiana at 7, 9, 9.30, 11, am. 12 m., 2, 4, 4.15, 5.30, pm.

Trains will leave the City Hall, New York, for Fordham and Williams' Bridge, at 7 30 and 9 30 am., 12 m., 2, 4 15, 5 30 pm.

Trains will leave the City Hall, New York, for Hunt's Bridge, Underhill's and Hart's Corners, at 9 30 am., 4 15 pm.

Trains will leave the City Hall, New York, for Tuckahoe and White Plains, at 7 30 and 9 30 am., 3 and 4 15 pm.

Trains will leave Davis' Brook, Pleasantville, Chapequa, Mount Kisko, Bedford, Mechanicsville, Purdy's and Croton Falls, at 7 30 and 9 30 am., 3 pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Morrisiana and Harlem at 7 20,8, 8 50, 10 am., 12m., 1 35, 3, 3 45, 5, 5 35 pm.

Fordham and William's Bridge at 7, 8 30, 9 50 am., 1 15, 3 25, 5 20 pm.

Hunt's Bridge at 8 20, am., 3 18 pm.

Underhill's Road at 8 10 am., 3 08 pm.

Tuckahoe at 8 05, 9 30 am., 3 05, 5 pm.

Hart's Corners at 7 55 am., 2 52 pm.

White Plains at 7 45, 9 10 am., 2 45, 4 40 pm.

Davis' Brook at 9 am., 2 35, 4 30 pm.

Pleasantville at 8 49 am., 2 20, 4 19 pm.

Mount Kisko at 8 30 am., 2, 4 pm.

Bedford at 8 25 am., 1 55, 3 55 pm.

Mechanicsville at 8 15 am., 1 45, 3 45 pm.

Purdy's at 8 05 am., 1 35, 3 35 pm.

Croton Falls, at 8 am., 1 30, 3 30 pm.

The trains for Harlem and Morrisiana leaving City Hall at 7, 9, 9 30, 11, 12, 2, 4, and 5 30, and from Morrisiana and Harlem at 7 20, 8, 10, 12, 1 35, 3, 3 45, and 5 o'clock, will land and receive passengers at 27th st., 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th, and 132d streets.

The 7 30 am., and 3 pm. Trains from New York to Croton Falls, and the 8 am. Train from Croton Falls will not stop between White Plains and New York, except at Tuckahoe, Williams' Bridge and Fordham.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 32d street.

Freight Trains leave New York at 6 am. and 1 pm.: leave Croton Falls at 7 am. and 2 30 pm., Sundays excepted.

NOTICE—On Sundays the 7 am. to Harlem and Morrisiana, returning at 8 o'clock, and the 7 30 am. to Croton Falls, returning 1 30 pm., will be omitted, and the 7 am. from Williams Bridge will leave at 7 40 and Morrisiana and Harlem at 8 o'clock a. m.

ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.


Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinthe, leaving each terminus alternately, until further notice.

Leaverng St. Hyacinth at - -	7 am.
" " - -	3 pm.
Leaving Montreal at - - -	10 am.
" " - - -	6 pm.

THOMAS STEERS, *Secretary.*

May 31, 1849.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains run daily, except Sundays, as follows:


Leave Baltimore at - - -	9 am. and 3½ pm.
Arrive at - - - -	9 am. and 6½ pm.
Leave York at - - - -	5 am. and 3 pm.
Arrive at - - - -	12½ pm. & 8 pm.
Leave York for Columbia at -	1½ pm. & 8 am.
Leave Columbia for York at -	8 am. & 2 pm.

Fare:

Fare to York - - - -	$1 50
" Wrightsville - - - -	2 00
" Columbia - - - -	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg - - - - - -	$9
Or via Lancaster by railroad - - -	10
Through tickets to Harrisburg or Gettysburg -	3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at - - 5½ pm.

Returning, leaves Owing's Mills at - - 7 am.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.


This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot - -	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. - - -	0 40	0 65
	Cotton, per 100 lbs. -	0 45	0 70
	Molasses per hogshead -	8 50	13 50
	" " barrel - -	2 50	4 25
	Salt per bushel - -	0 18	
	Salt per Liverpool sack -	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows - -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS,

44*1y Sup't of Transportation.

LITTLE MIAMI RAILROAD.—WINTER ARRANGEMENT.

Change of Hours.

On and after Thursday, November 9th, 1848, until further notice, Passenger Trains will run as follows:

Leave Depot East Front street at 9½ o'clock, am., and 2½ o'clock, p.m., for Milford, Foster's Crossings, Deerfield, Morrow, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield.

Returning, leave Springfield, at 2½ o'clock, and 9½ o'clock, am.

Passengers for New York, Boston, and intermediate points, should take the 9½ o'clock, am., Train from Cincinnati.

Passengers for Columbus, Zanesville, Wheeling and intermediate towns, should take the 9½ o'clock, am., Train.

The Ohio Stage Company are running the following lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 2½ o'clock, pm. Train from Cincinnati.

The 2½, pm., Train from Cincinnati, and 2½, am., Train from Springfield, are intended for the accommodation of Way Passengers only, and will be eight hours on the road.

Fare from Cincinnati to Xenia	-	-	$1 90
Do	do	Springfield -	- 2 50
Do	do	Sandusky City	- 6 50
Do	do	Buffalo	- - 10 00
Do	do	Columbus	- - 4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENTS, Superintendent.

☞ The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value to that amount.

BALTIMORE AND OHIO RAILROAD, MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½, and Cumberland at 8 o'clock passing Ellicott's Mills, Frederick, Harper's Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harper's Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia, and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between these points $7, and 4 cents per mile for less distances.—Fare through to Wheeling $11, and time about 36 hours, to Pittsburgh $10, and time about 32 hours.—Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily, except Sundays, from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M., and 5 P. M., and 12 at night from Baltimore, and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay House. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13 y1

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.


Summer Arrangement.

April 1st, 1849.—Fare $3.

Leave Philadelphia 8½ am., and 10 pm.

Leave Baltimore 9 am, and 8 pm.

Sunday—Leave Philadelphia at 10 pm.

" " Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, $20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, $12.

" " Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.

Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm.

Fare $3.—Second class, $2.

N.B.—Extra baggage charged for.

I. R TRIMBLE, Gen. Supt.

AMERICAN RAILROAD JOURNAL.
PUBLISHED BY J. H. SCHULTZ & CO.
NOS. 9 & 10 PRIME'S BUILDINGS,
(THIRD FLOOR,)
54 WALL STREET,
NEW YORK CITY.

TERMS.—Five Dollars a year, *in advance*.

RATES OF ADVERTISING.

One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One columnn " "	3 00
One square " "	1 00
Professional notices per annum	5

☞ LETTERS and COMMUNICATIONS this Journal may be directed to the *Editor*,
HENRY V. POOR, 54 WALL ST.